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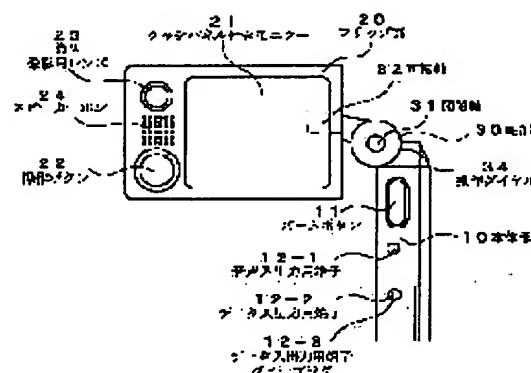
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## (54) PORTABLE TERMINAL

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a multifunctional portable terminal which is provided with a function of a video telephone or a video camera by which a user can simultaneously send a scene which the user is viewing and his expression, a pen entry function, and a data communication function and is miniaturized without impairing portability.

**SOLUTION:** This portable terminal is provided with a device main part 10, a revolving shaft part 30, and a flip part 20, and the device main body part 10 has a microphone 18, a key operation part 17, and an image and voice radio transmission/reception function 54, and the revolving shaft part 30 is provided with a video camera 33 and an operation dial 34, and, and the flip part 20 is provided with a video display part 21 which displays an image photographed by the video camera 33, a received image, and an image for input operation and is provided with a touch panel, a CCD camera 23, a loudspeaker 24, and an operation button 22, and the revolving shaft part 30 is provided with an open/close shaft 31, which couples the device body part 10 and the flip part 20 so that they can be rotated relative to each other, and a revolving shaft 32 which couples the flip part so that it can be rotated in a horizontal direction different from the rotation direction, and the portable terminal is used as a video camera with a monitor, when the flip part is rotated in the opening horizontal direction.



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**CLAIMS**

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[Claim(s)]

[Claim 1] The personal digital assistant characterized by having contained and prepared the lens for the 1st photography in the longitudinal direction in said shank in the personal digital assistant which it comes to connect by the shank which can rotate the body section and the flip section equipped with a monitoring screen freely, and preparing the lens for the 2nd photography in the predetermined part of said flip section.

[Claim 2] The personal digital assistant characterized by having prepared the lens for the 1st photography and preparing the lens for the 2nd photography in the predetermined part of said flip section near said shank in the personal digital assistant which it comes to connect by the shank which can rotate the body section and the flip section equipped with a monitoring screen freely.

[Claim 3] It is the personal digital assistant according to claim 1 or 2 which said flip section arranges said lens for 2 photography to said monitoring screen side, and is characterized by equipping said shank with the structure which the field inside said body section and the field inside said flip section are contacted mutually, and closes them.

[Claim 4] The personal digital assistant according to claim 3 characterized by to have a means choose and perform the function beforehand specified based on the include angle and the physical relationship which said flip section which said shank condition sensor detects, and said body section constitute from various kinds of usable functions with which are equipped with the shank condition sensor which detects the include angle which said flip section and said body section accomplish, and physical relationship, and a personal digital assistant is equipped with the include angle which the amount of [ of said shank ] moving part accomplishes.

[Claim 5] The personal digital assistant according to claim 4 characterized by having a microphone inside said body section, having a loudspeaker inside said flip section, having the communications department which communicates voice, and having the means which makes the call function by the radiocommunication circuit ready condition when the field inside said body section and the field inside said flip section turn to the same approach and are mutually opened in it.

[Claim 6] The personal digital assistant according to claim 4 or 5 characterized by to have the means which makes the call function by the radiocommunication circuit ready condition when the field which equips said body section with a microphone in one field, equips the outside of said flip section with a loudspeaker, is equipped with the communications department which communicates voice, and is equipped with said microphone of said body section, and the field of the outside of said flip section turn to the same approach and are mutually opened in it.

[Claim 7] It is the personal digital assistant according to claim 5 or 6 characterized by having a loudspeaker inside said flip section and having the means which makes ready condition the call function of the TV phone by the radiocommunication circuit when the field which said communications department has the means of communications of an image, and is equipped with said microphone of said body section, and the field inside said flip section turn to the same approach and are mutually opened in it.

[Claim 8] It has the information processing section which processes the inputted information and an instruction. Said monitoring screen When it considers as a monitor with a touch panel, and the field of the outside of said flip section and one field of said body section contact mutually and are closed The personal digital assistant of any one publication of claim 4 to claim 7 characterized by having the means which makes ready condition the function of the information which received the input from said touch panel and was inputted, or the information terminal which processes an instruction.

[Claim 9] It has a storage means to record electronic data, and a means to change into electronic data the static image which said lens for the 1st photography and said lens for the 2nd photography photo. The sense

of said lens for the 1st photography and the sense of said lens for the 2nd photography to hard flow The personal digital assistant of any one publication of claim 5 to claim 8 characterized by having the means which makes the function of photography as a digital camera ready condition when said body section and said flip section are opened.

[Claim 10] The personal digital assistant according to claim 9 with which it has a means to change into electronic data the dynamic image which said lens for the 1st photography and said lens for the 2nd photography photo, and the sense of said lens for the 1st photography and the sense of said lens for the 2nd photography are characterized by having the means which makes the function of photography as a digital camcorder ready condition when said body section and said flip section are opened to hard flow.

[Claim 11] the field inside said body section and the field inside said flip section are mutual -- the case where it is contact and close -- current -- the personal digital assistant of any one publication of claim 5 to claim 10 characterize by to have a means suspend the function which judges that it is in an intact condition , is beforehand set up as an object of a post process among the functions under current starting , and is require .

[Claim 12] The personal digital assistant of any one publication of claim 1 to claim 11 characterized by having a storage means to record electronic data.

[Claim 13] The personal digital assistant according to claim 12 which is equipped with a means to change into electronic data the static image which said lens for the 1st photography and said lens for the 2nd photography photo, and is characterized by recording said photoed static image on said storage means as a digital camera.

[Claim 14] The personal digital assistant according to claim 13 which is equipped with a means to change into electronic data the dynamic image which said lens for the 1st photography and said lens for the 2nd photography photo, and is characterized by recording said photoed dynamic image on said storage means as a digital camcorder.

[Claim 15] The personal digital assistant of any one publication of claim 1 to claim 14 characterized by having the communications department which performs the communication link of an image and voice, and having a means to transmit the image photoed with said lens for the 1st photography, and said lens for the 2nd photography through said communications department.

[Claim 16] It is the personal digital assistant according to claim 15 characterized by equipping said body section with a microphone, equipping said flip section with a loudspeaker, and performing the call by the radiocommunication circuit by said communications department.

[Claim 17] The personal digital assistant according to claim 16 characterized by displaying the image which said communications department received on said monitoring screen, reproducing the voice which said communications department received by said loudspeaker, having a means to transmit the voice inputted into the image photoed with said lens for the 1st photography, and said lens for the 2nd photography, and said microphone, and performing the call by the TV phone by said communications department.

[Claim 18] It is the personal digital assistant of any one publication of claim 1 to claim 17 characterized by having a means to have the information processing section which processes the inputted information and an instruction, to use said monitoring screen as a monitor with a touch panel, to receive the input from said touch panel, and to process the inputted information and an instruction.

[Claim 19] The personal digital assistant according to claim 18 characterized by receiving the input to said monitoring screen which is said monitor with a touch panel using an input pen.

[Claim 20] The personal digital assistant of any one publication of claim 1 to claim 19 characterized by changing the class of image which is equipped with the manual operation button which directs the class of image displayed on said monitoring screen to said control section, and is displayed on said monitoring screen according to the directions from said manual operation button.

[Claim 21] A means to display the image which said lens for the 1st photography photos on said monitoring screen, A means to display the image which said lens for the 2nd photography photos on said monitoring screen, The both sides of the image which said lens for the 1st photography photos to said monitoring screen, and the image which said lens for the 2nd photography photos simultaneously The personal digital assistant according to claim 20 characterized by changing the class of image which is equipped with a means to display on the part in said monitoring screen set to each, and is displayed on said monitoring screen according to the directions from said manual operation button.

[Claim 22] The personal digital assistant of any one publication of claim 1 to claim 21 characterized by having the I/O section which connects with external information machines and equipment, and performs the communication link by the electrical signal, and performing the information machines and equipment of

said exterior, and bidirectional data transfer through said I/O section.

[Claim 23] The personal digital assistant of any one publication of claim 1 to claim 22 characterized by having the voice-input/output terminal which transmits and receives a sound signal.

[Claim 24] The closing motion shaft connected so that one side which said shank connected the center of one side with said flip section and the center of one side with said body section movable, and the both sides of said flip section and said body section have connected may be freely opened and closed as a core, The personal digital assistant of any one publication of claim 1 to claim 23 characterized by having the revolving shaft which said flip section connects so that it may rotate freely to said closing motion shaft.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] Especially this invention relates to the small personal digital assistant which realizes many functions, such as a telephone function, a TV phone function, a digital camera function, a digital camcorder function, and a pen input terminal, in a compact about a personal digital assistant.

[0002]

[Description of the Prior Art] A personal digital assistant is a small device equipped with processing facilities, such as a communication link, an image, and information, is convenient to carry and excellent in the cellular phone.

[0003] There are a cellular phone, PHS, a TV phone, a digital camera and a digital camcorder, a communication terminal, an information terminal by the pen input, etc. in the personal digital assistant generally used widely conventionally.

[0004] Moreover, recently, the personal digital assistant doubled and equipped with two or more functions of these has also appeared. In this method, in order to have two or more functions according to one set, the need of carrying the personal digital assistant of two or more classes simultaneously is canceled, and there is an advantage that the portability which is the object of a personal digital assistant improves.

[0005] Furthermore, since there are also many equipment and the functions which are needed in common with two or more personal digital assistants, it is possible to double and have two or more functions, without being able to share the equipment which is these-common and losing the property of a lightweight and small personal digital assistant, when it has two or more functions according to one set.

[0006] Thus, if the personal digital assistant equipped with two or more functions according to one set is compared with the method equipped with a personal digital assistant equipped with various kinds of functions according to an individual, since the equipment with which consumption of power is excellent in maintainability or portability few with equipment, and common can be shared, a production cost has low many advantages which are far excellent, like the purchase price is made at a low price.

[0007] There is a technique indicated by JP,06-292195,A as an example of the personal digital assistant equipped with two or more conventional functions according to one set, it has a liquid crystal display monitor, a CCD camera loudspeaker, and communication facility, and the personal digital assistant which realizes the function of a cellular phone and a mobile videophone is proposed.

[0008] Moreover, generally the gestalt which is the next door of a liquid crystal display monitor, and installs a CCD camera on the same field as the liquid crystal display monitor of the front face of a personal digital assistant is used for the mobile videophone by the conventional personal digital assistant including the personal digital assistant of this JP,06-292195,A.

[0009] Thereby, a user realizes the function of a mobile videophone by photoing a mutual face image and transmitting to a call partner with the CCD camera installed next to the liquid crystal display monitor, looking at the received image which is displayed on a liquid crystal display monitor.

[0010] Moreover, including the personal digital assistant of this JP,06-292195,A, with the conventional personal digital assistant, the flip section (or smaller area) of this area is mostly prepared with the body section of equipment of a personal digital assistant, and many gestalten connected using a movable shank so that both this flip section and body section may open and close free like a shell are also adopted. In this case, in order to support a personal digital assistant by hand by the body section of equipment, the method which mainly equips the body section of equipment with a manual operation button, and equips the flip section with a liquid crystal display monitor is general.

[0011] With this gestalt, when it closes to the both sides of the flip section and the body section, they get the field of the inside which cannot touch outside, and a liquid crystal display monitor, various kinds of manual operation buttons, etc. can be arranged to the field which becomes this inside. For this reason, when not using it, by closing small, breakage on a liquid crystal display monitor and the operation mistake of a manual operation button can be prevented, and the outstanding portability can be realized.

[0012]

[Problem(s) to be Solved by the Invention] There was a trouble it is described below with the conventional personal digital assistant that mentioned above.

[0013] Although very many advantages were realizable by adopting the method which equips the 1st with two or more functions of personal digital assistants, such as a telephone function, a TV phone function, a digital camera function, a digital camcorder function, and a pen input terminal, according to one set, the number of the functions which it can have simultaneously was realizable only by only 2 and 3 function with the conventional personal digital assistant. Especially the possible personal digital assistant of having all above-mentioned functions was unrealizable.

[0014] This is because a circuit and an equipment configuration will be complicated, operability also got worse further and these failures were not able to be canceled, in order to have two or more functions simultaneously in a small and lightweight personal digital assistant.

[0015] The mobile videophone according to the conventional personal digital assistant to the utilization gestalt which uses the portability of a personal digital assistant effectively and transmits [ 2nd ] the image of various scenery or a body in a going-out place etc. by the function of a mobile videophone being searched for is very inconvenient to photography of images other than its face. [ such ]

[0016] This is because it is necessary to change the sense of the lens for photography, in order for one to be the next door of a liquid crystal display monitor, and to be because it was the gestalt installed on the same field as the liquid crystal display monitor of the main frame and for images other than their faces, such as a surrounding scene, to photo a CCD camera in the former.

[0017] Moreover, a user cannot see the display of a liquid crystal display monitor in this case. The CCD camera of an above-mentioned gestalt needs [ since the focus is set as the immediately near location from the lens suitable for photography of a face image, ] reference of a liquid crystal display monitor, also in order to photo a surrounding scene etc., and to double the focus of a lens.

[0018] The 3rd is expected to turn the body section of equipment, and the flip section in the optimal direction for activation of each function in activation of various functions in which personal digital assistants, such as a telephone function, a TV phone function, a digital camera function, a digital camcorder function, and a pen input terminal, are possible with the personal digital assistant which connects the flip section with the body section of equipment of the former mentioned above movable. However, in the conventional personal digital assistant, it is only only being able to perform actuation of closing motion between the flip section and the body section, in addition the sense was not able to be doubled in the flexible direction.

[0019] The 1st object of this invention is offering the personal digital assistant which solves the fault of the above-mentioned conventional technique, and has the function of a mobile videophone, a digital camcorder, or a digital still camera, and does not spoil portability. Moreover, it is offering the personal digital assistant which the touch panel in which a pen input's is possible was equipped [ personal digital assistant ], and enriched the function not only about a TV phone but about data communication.

[0020] The 2nd object of this invention is offering a personal digital assistant equipped with the function of the mobile videophone which can perform easily transmission at the call place of images which solve the fault of the above-mentioned conventional technique and appear from a user side, such as surrounding scenery.

[0021] The 3rd object of this invention is offering the personal digital assistant which can solve the fault of the above-mentioned conventional technique and can turn flexibly the sense of the body section of equipment, and the flip section in the optimal direction for activation of each function.

[0022]

[Means for Solving the Problem] In order to attain the above-mentioned object, the personal digital assistant of this invention is characterized by having contained and prepared the lens for the 1st photography in the longitudinal direction in said shank, and preparing the lens for the 2nd photography in the predetermined part of said flip section in the personal digital assistant which it comes to connect by the shank which can rotate the body section and the flip section equipped with a monitoring screen freely.

[0023] A personal digital assistant according to claim 2 is characterized by having prepared the lens for the

1st photography and preparing the lens for the 2nd photography in the predetermined part of said flip section near said shank, in the personal digital assistant which it comes to connect by the shank which can rotate the body section and the flip section equipped with a monitoring screen freely.

[0024] Said flip section of a personal digital assistant according to claim 3 arranges said lens for 2 photography to said monitoring screen side, and said shank is characterized by having the structure which the field inside said body section and the field inside said flip section are contacted mutually, and closes them.

[0025] A personal digital assistant according to claim 4 is characterized by to have a means choose and perform the function beforehand specified based on the include angle and the physical relationship which said flip section which said shank condition sensor detects, and said body section constitute from various kinds of usable functions with which are equipped with the shank condition sensor which detects the include angle which said flip section and said body section accomplish, and physical relationship, and a personal digital assistant is equipped with the include angle which the amount of [ of said shank ] moving part accomplishes.

[0026] A personal digital assistant according to claim 5 is characterized by having a microphone inside said body section, having a loudspeaker inside said flip section, having the communications department which communicates voice, and having the means which makes the call function by the radiocommunication circuit ready condition when the field inside said body section and the field inside said flip section turn to the same approach and are mutually opened in it.

[0027] A personal digital assistant according to claim 6 is characterized by to have the means which makes the call function by the radiocommunication circuit ready condition, when the field which equips said body section with a microphone in one field, equips the outside of said flip section with a loudspeaker, is equipped with the communications department which communicates voice, and is equipped with said microphone of said body section, and the field of the outside of said flip section turn to the same approach and are mutually opened in it.

[0028] It is characterized by equipping a personal digital assistant according to claim 7 with a loudspeaker inside said flip section, and having the means which makes ready condition the call function of the TV phone by the radiocommunication circuit when the field which said communications department has the means of communications of an image, and is equipped with said microphone of said body section, and the field inside said flip section turn to the same approach and are mutually opened in it.

[0029] A personal digital assistant according to claim 8 is equipped with the information processing section which processes the inputted information and an instruction , and said monitoring screen uses as a monitor with a touch panel , and when the field of the outside of said flip section and one field of said body section contact mutually and are closed , it is characterized by to have the means which makes ready condition the function of the information which received the input from said touch panel and was inputted , or the information terminal which processes an instruction .

[0030] A personal digital assistant according to claim 9 is equipped with a storage means to record electronic data, and a means to change into electronic data the static image which said lens for the 1st photography and said lens for the 2nd photography photo. The sense of said lens for the 1st photography and the sense of said lens for the 2nd photography are characterized by having the means which makes the function of photography as a digital camera ready condition, when said body section and said flip section are opened to hard flow.

[0031] A personal digital assistant according to claim 10 is characterized by having a means to change into electronic data the dynamic image which said lens for the 1st photography and said lens for the 2nd photography photo, and equipping the sense of said lens for the 1st photography, and the sense of said lens for the 2nd photography with the means which makes the function of photography as a digital camcorder ready condition, when said body section and said flip section are opened to hard flow.

[0032] a personal digital assistant according to claim 11 has a field inside said body section, and a mutual field inside said flip section -- the case where it is contacted and closed -- current -- it is characterized by having a means to suspend the function which judges that it is in an intact condition, is beforehand set up as an object of a post process among the functions under current starting, and is required.

[0033] A personal digital assistant according to claim 12 is characterized by having a storage means to record electronic data.

[0034] A personal digital assistant according to claim 13 is equipped with a means to change into electronic data the static image which said lens for the 1st photography and said lens for the 2nd photography photo, and is characterized by recording said photoed static image on said storage means as a digital camera.



[0035] A personal digital assistant according to claim 14 is equipped with a means to change into electronic data the dynamic image which said lens for the 1st photography and said lens for the 2nd photography photo, and is characterized by recording said photoed dynamic image on said storage means as a digital camcorder.

[0036] A personal digital assistant according to claim 15 is characterized by having the communications department which performs the communication link of an image and voice, and having a means to transmit the image photoed with said lens for the 1st photography, and said lens for the 2nd photography through said communications department.

[0037] Said body section of a personal digital assistant according to claim 16 is equipped with a microphone, said flip section is equipped with a loudspeaker, and it is characterized by performing the call by the radiocommunication circuit by said communications department.

[0038] A personal digital assistant according to claim 17 displays the image which said communications department received on said monitoring screen, reproduces the voice which said communications department received by said loudspeaker, is equipped with a means to transmit the voice inputted into the image photoed with said lens for the 1st photography, and said lens for the 2nd photography, and said microphone, and is characterized by performing the call by the TV phone by said communications department.

[0039] It is characterized by having a means for a personal digital assistant according to claim 18 to be equipped with the information processing section which processes the inputted information and an instruction, and to use said monitoring screen as a monitor with a touch panel, to receive the input from said touch panel, and to process the inputted information and an instruction.

[0040] A personal digital assistant according to claim 19 is characterized by receiving the input to said monitoring screen which is said monitor with a touch panel which uses an input pen.

[0041] A personal digital assistant according to claim 20 is equipped with the manual operation button which directs the class of image displayed on said monitoring screen to said control section, and is characterized by changing the class of image displayed on said monitoring screen according to the directions from said manual operation button.

[0042] A means by which a personal digital assistant according to claim 21 displays the image which said lens for the 1st photography photos on said monitoring screen, A means to display the image which said lens for the 2nd photography photos on said monitoring screen, The both sides of the image which said lens for the 1st photography photos to said monitoring screen, and the image which said lens for the 2nd photography photos simultaneously It has a means to display on the part in said monitoring screen set to each, and is characterized by changing the class of image displayed on said monitoring screen according to the directions from said manual operation button.

[0043] A personal digital assistant according to claim 22 is equipped with the I/O section which connects with external information machines and equipment, and performs the communication link by the electrical signal, and is characterized by performing the information machines and equipment of said exterior, and bidirectional data transfer through said I/O section.

[0044] A personal digital assistant according to claim 23 is characterized by having the voice-input/output terminal which transmits and receives a sound signal.

[0045] Said shank of a personal digital assistant according to claim 24 connects the center of one side with said flip section, and the center of one side with said body section movable. It is characterized by having the closing motion shaft connected so that the both sides of said flip section and said body section may open and close one connected side freely as a core, and the revolving shaft which said flip section connects so that it may rotate freely to said closing motion shaft.

[0046]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing.

[0047] It is drawing which looked at the condition that drawing 12 turned the body section of equipment and the flip section of one example of a personal digital assistant by the gestalt of operation of the 1st of this invention in the various directions, from various directions from drawing 1.

[0048] If drawing 12 is referred to from drawing 1, as for the personal digital assistant of the gestalt of operation of this invention, the body section 10 and the flip section 20 are connected movable through the shank 30.

[0049] A shank 30 is equipped with the closing motion shaft 31 and a revolving shaft 32 as shown in drawing 1. the closing motion shaft 31 -- the body section of equipment, and the flip section -- relativity -- a



revolving shaft 32 is connected so that it may become pivotable perpendicularly to the hand of cut of the closing motion shaft 31, so that it may become pivotable.

[0050] Moreover, in the closing motion shaft 31, it has the actuation dial 34 in one edge in the lens 33 for the 1st photography for digital cameras, and another side.

[0051] The flip section 20 has the monitor 21 with a touch panel, the manual operation button 22 for a screen change, the lens 23 for the 2nd photography for TV phones, and a speaker phone 24 inside, as shown in drawing 1.

[0052] Inside the body section 10 of equipment is equip with the animation and the still picture changeover switch 16, and the microphone 18 which changes the class of the actuation key 17 which inputs the telephone number as show in drawing 9, and image to photo, as show in drawing 2, it equips one side face with a stroboscope 14 and the carbon button 13 for photography, and as show in drawing 1, it equips the side face of another side with the zoom carbon button 11, the terminal 12-2 for data I/O, the dummy plug 12-3 for data output, and the terminal 12-1 for voice input/outputs.

[0053] Moreover, the body section 10 is equipped with the pen storing section 19 for an input which stores the pen 40 for an input used at the time of a pen input.

[0054] Drawing 13 is the block diagram showing the internal structure of the gestalt terminal of the gestalt of this operation.

[0055] When drawing 13 is referred to, the gestalt terminal of the gestalt of this operation Each of other internal equipment is controlled by the control section 51. The communication link by the storage section 53 for recording the control unit 52 for the lens 33 for the 1st photography, the lens 23 for the 2nd photography, the monitor 21 with a touch panel, a loudspeaker 24, a microphone 18, and a user performing various actuation, the photoed image, a radiocommunication circuit, etc. It has the shank condition sensor 55 which detects the direction which investigates the condition of the communications department 54 which carries out, and a shank 30, and the body section 10 and the flip section 20 constitute.

[0056] The personal digital assistant of the gestalt of this operation carries out various functions, such as a telephone function, a TV phone function, a digital camera function, a digital camcorder function, and a pen input terminal, towards the direction which was suitable for each of each function in the body section 10 and the flip section 20.

[0057] Next, one example which uses each [ these ] function of the personal digital assistant of the gestalt of this operation is explained to a detail with reference to a drawing with the sense of the body section 10 suitable for each function, and the flip section 20.

[0058] Drawing 4 to drawing 8 is drawing showing the condition at the time of intact of the personal digital assistant of the gestalt of this operation of having folded up.

[0059] At the time of intact, as shown in drawing 8 from drawing 4, the body section 10 and the flip section 20 are folded up centering on the closing motion shaft 31. Thus, since the actuation key 17 of the monitor 21 with a touch panel of the flip section 20 or the body section 10 is closed inside, there is no contact outside, breakage on the monitor 21 with a touch panel and the operation mistake of the actuation key 17 are prevented, and it excels in portability.

[0060] When using it as a TV phone machine, the relative revolution of the body section 10 and the flip section 20 is first carried out to the location which serves as a L character mold centering on the closing motion shaft 31, and, next, a longitudinal direction is made to rotate the flip section 20 90 degrees, as shown in drawing 1 R> 1, drawing 2, and drawing 3.

[0061] Operating instructions telephone using the actuation key 17 like the usual cellular phone. It is also possible for conversation to be held through a speaker phone 24, and to use it, connecting a microphone and headphone to the terminal 12-1 for voice input/outputs.

[0062] A manual operation button 22 can be operated during an activity, and the screen displayed on the monitor 21 with a touch panel can be changed variously.

[0063] The screen displayed on the monitor 21 with a touch panel here It is not restricted only to the image of the call partner transmitted by the call of a TV phone. The gestalt which may display a user's impending scenery and the objective image which are photoed by their image and lens 33 for the 1st photography of a face, and also displays the above-mentioned image simultaneously is also possible. [ who is photoed by the lens 23 for the 2nd photography which is the image transmitted to a call place from a user side ]

[0064] That is, three kinds of images, a call partner's image, the image of their face, and a user's impending image, are changed variously, and it combines and displays.

[0065] As a display gestalt of such an image, there are some which display one of these images on the 1st all over the monitor 21 with a touch panel. What displays two of these images on the monitor 21 with a touch

panel by one half the 2nd, What displays [ 3rd ] these three images on the monitor 21 with a touch panel every [ 3 / 1/], What displays one of these images on the 4th all over the monitor 21 with a touch panel, and displays small other images (inside one or two) which remain in piles upwards further as a child screen can be considered.

[0066] The display position of the child screen in the gestalt of this 4th display can consider the gestalt which specifies a display position and magnitude as the monitor 21 with a touch panel with the gestalt displayed on the location set up beforehand, and the pen 40 for an input, and after a display operates a manual operation button 22, chooses from setting out of the location of arbitration, and the gestalt with which it can change into magnitude and two or more display positions set up beforehand, and displays.

[0067] Moreover, the image transmitted to a call partner shall also be variously chosen by actuation of the above-mentioned manual operation button 22 etc. like selection of the image displayed on the monitor 21 with a touch panel.

[0068] Although this usually transmits the image of its face photoed by the lens 23 for the 2nd photography to a call partner, it transmits the image which changed to a user's impending scenery and the objective image which are interlocked with selection of the image displayed on the monitor 21 with a touch panel, or are independently photoed by the lens 33 for the 1st photography, or was combined.

[0069] As mentioned above, since images, such as scenery not only in front of the image of their face but an eye, can be changed easily and it can transmit, it is very convenient for transmission of the scenery in a going-out place etc., and the function of the TV phone of the personal digital assistant of this example employs the portability of a personal digital assistant efficiently well.

[0070] Moreover, although the image of a user's impending scenery is transmitted with the above-mentioned gestalt, the gestalt which transmits only the image of its face is also possible. In this case, the relative revolution of the body section 10 and the flip section 20 is carried out to the location which serves as a L character mold centering on the closing motion shaft 31, it is good to even open and there is no need of making a longitudinal direction rotating the flip section 20 90 degrees.

[0071] Next, when using it as a digital camcorder, it is desirable to use it with the sense of the same body section 10 as the above-mentioned TV phone shown in drawing 3 from drawing 1 and the flip section 20.

[0072] A user is setting the animation and the still picture changeover switch 16 shown in drawing 9 to animation photography, and sets the class of image photoed with the lens 33 for the 1st photography as a dynamic image. The magnitude of the image to photo is adjusted using the zoom carbon button 11, referring to the monitor 21 with a touch panel. If the carbon button 13 for photography is pushed, photography will be performed, the dynamic image reflected to the lens 33 for the 1st photography is changed into electronic data, and it is recorded on the storage section 53.

[0073] Here, the storage section 53 can be memorized to the semiconductor memory which builds in the electronic data of an image, can be called at any time, and can be reproduced on the monitor 21 with a touch panel. When transmitting the stored data to external information processing terminals, such as a personal computer, the terminal dummy plug 12-3 for data I/O is pulled out from the terminal 12-2 for data I/O shown in drawing 1, instead an interconnection cable is inserted. It connects with an information processing terminal and the I/O of data of the other end of an interconnection cable is attained.

[0074] Moreover, by using the fixed hole 15 for tripods, it is also possible to take a photograph in the condition of having fixed to the tripod.

[0075] Similarly, when using it as a digital still camera, it is desirable to use it with the sense of the same body section 10 as the above-mentioned TV phone shown in drawing 3 from drawing 1 and the flip section 20.

[0076] A user is setting the animation and the still picture changeover switch 16 shown in drawing 9 to still picture photography, and sets the class of image photoed with the lens 33 for the 1st photography as a static image. The magnitude of the image to photo is adjusted using the zoom carbon button 11, displaying on the monitor 21 with a touch panel, and referring to this. If the carbon button 13 for photography is pushed, photography will be performed, the static image reflected to the lens 33 for the 1st photography is changed into electronic data, and it is recorded on the storage section 53.

[0077] In this case, the carbon button 13 for photography has the role of a shutter, and takes a photograph using this carbon button. Thus, the photoed image is recorded on the storage section 53, and can be called at any time and can be reproduced.

[0078] Moreover, by using the fixed hole 15 for tripods, it is also possible to take a photograph in the condition of having fixed to the tripod.

[0079] When using it as a pen input terminal, it is used according to the gestalt which the field inside the

body section 10 and the field of the outside of the flip section 20 were contacted, and closed them as shown in drawing 11 . This is changed into the condition of drawing 11 by making a longitudinal direction rotate only the flip section 20 180 degrees centering on a revolving shaft 32, and uniting the body section 10 and the flip section 20 centering on the closing motion shaft 31 again, after opening the body section 10 and the flip section 20 to the location of arbitration centering on the closing motion shaft 31 from the condition which usual [ which is shown in drawing 10 ] closed.

[0080] Thereby, as shown in drawing 12 , the input of various data or an instruction can be performed to the monitor 21 with a touch panel of the flip section 20 using the pen 40 for an input. Since the personal digital assistant is small closed outside in the monitor 21 with a touch panel, a personal digital assistant is supportable by a hand etc. from the body section 10 so that the monitor 21 with a touch panel may not be shaky on the occasion of the input of the pen 40 for an input.

[0081] Moreover, you may use it according to the gestalt which the field of the outside of the body section 10 and the field of the outside of the flip section 20 were contacted, and closed them. From the condition similarly shown in drawing 10 , this opens the body section 10 and the flip section 20 360 degrees centering on the closing motion shaft 31, and unites the fields of the outside of the body section 10 and the flip section 20.

[0082] When using it as a usual cellular phone, as shown in drawing 9 , conversation becomes possible by open Lycium chinense to the location of arbitration centering on the closing motion shaft 31 about the body section 10 and the flip section 20. The telephone number is inputted by the actuation key 17 like the case of a TV phone, voice is inputted with a microphone 18, and the voice which received with the loudspeaker 24 is reproduced.

[0083] As mentioned above, many functions, such as a telephone function, a TV phone function, a digital camera function, a digital camcorder function, and a pen input terminal, are realizable for a compact with the personal digital assistant of the gestalt of this operation.

[0084] Next, the personal digital assistant of the gestalt of operation of the 2nd of this invention is explained.

[0085] In the gestalt of the 2nd operation, starting of various kinds of functions with which the gestalt terminal of this invention is equipped is controlled according to the sense which the body section 10 and the flip section 20 accomplish.

[0086] When accomplishing the sense suitable for each function which the sense of the body section 10 and the flip section 20 explained in the gestalt of the 1st operation is detected by the shank condition sensor 55, it starts the function concerned or changes into the condition which can be started.

[0087] Drawing 14 is a flow chart for explaining control of the personal digital assistant of the gestalt of this operation.

[0088] If drawing 14 is referred to, the shank condition sensor 55 will detect first the include angle which each of the closing motion shaft 31 and revolving shaft 32 of a shank 30 accomplishes in order to recognize the sense which the body section 10 and the flip section 20 accomplish. (Step 1401)

Here, when the closing motion shaft 31 has closed (step 1402) and there is no revolution in a revolving shaft 32 further (that is, the flip section 20 turns to the direction of a transverse plane), the insides are closed and (step 1403), the current body section 10, and the flip section 20 detect that it is in an intact condition (step 1404). Since it is intact, if required, processing of turning off the power automatically will be performed.

[0089] Here, when the closing motion shaft 31 have close (step 1402) and the sense of a revolving shaft 32 be rotate 180 degrees further (that is, the flip section turn to hard flow), it recognize that it be in the condition which the inside of (step 1403) and the current body section 10 and the outside of the flip section 20 be close, and use the function of a pen input terminal (step 1405).

[0090] The closing motion shaft 31 is open (step 1402), and the include angle of the closing motion shaft 31 is 90 degrees [ 180 or less ] or more, and when there is no revolution in a revolving shaft 32, it recognizes that it is the case where (step 1406) and a telephone function are used (step 1407).

[0091] The closing motion shaft is open (step 1402), and the include angle of a closing motion shaft recognizes that it is the case where one of functions is used among a TV phone and a digital camcorder digital still camera, when the lens 33 for the 1st photography of deflection and the lens 23 for the 2nd photography turn to [ a revolving shaft 32 ] hard flow 90 degrees at 90 degrees (step 1408) (step 1409). Here, it can be determined by actuation by the user who specifies it, initial setting defined beforehand whether which function of these is performed further.

[0092] Moreover, in not being which [ above ] case, either, it waits for (step 1408) and the sense which return, the body section 10, and the flip section 20 accomplish to step 1401 again to turn into sense

applicable to one of functions.

[0093] Here, in steps 1405 and 1407 and 1409 grades, when the function which carries out a current activity has been recognized and the function concerned has not started yet, in being required, it changes the function concerned into the condition in which starting or starting is possible. Moreover, when other functions are starting now, it is good also as what processes the change which starts the function which it made end the function under starting and it not only starts the function recognized only here, but has newly been recognized here.

[0094] Since it can respond to the sense of the body section 10 and the flip section 20 and starting of various kinds of functions with which a personal digital assistant is equipped can be performed to automatic in addition to the effectiveness of the gestalt of the 1st operation with the personal digital assistant of the gestalt of this operation explained above, various kinds of functions can be started or changed easily.

[0095] Next, the personal digital assistant of the gestalt of operation of the 3rd of this invention is explained.

[0096] As the personal digital assistant of the gestalt of operation of the 3rd of this invention is shown in drawing 15 and drawing 16 Equipping with the second loudspeaker 25 the background in which the speaker phone 24 is located in the flip section 20 differs from the gestalt of the 1st and the 2nd operation. When this uses as a cellular phone, the flip section 20 can be rotated 180 degrees centering on a revolving shaft 32, and the outside of the flip section and the inside of the body section can be turned and used for a table. In this case, conversation becomes possible, without a cheek's not being equivalent to monitor 21 with a touch panel part, but soiling a monitor front face, also while using it as a usual cellular phone.

[0097] Moreover, it is also possible by replacing step 1406 with "the include angle of a closing motion shaft being 90 degrees [ 180 or less ] or more, and a revolving shaft rotating 180 degrees and turning to hard flow" to double and carry out the gestalt of the 2nd operation and the gestalt of the 3rd operation.

[0098] Next, the gestalt of operation of others of this invention is explained.

[0099] The cellular phone which carries out some functions of [ a smaller number besides the gestalt which was explained with the gestalt of above-mentioned operation, and which is equipped with a telephone function, a TV phone function, digital camera functions, digital camcorder functions, and all the functions of a pen input terminal especially like of ] these is also possible for the function with which the gestalt terminal of this invention is equipped.

[0100] Moreover, the gestalt further equipped with functions, such as navigation systems, such as a reception function of the electric wave of radio or television, a function of a pocket bell, and car navigation, is possible similarly, and also when it has these functions further, there are many equipment and functions in common and they can add a function efficiently.

[0101] The storage section 53 is good also as a drive which stores data in the semiconductor memory which is the unit of the possible storage of removal, magnetic memory, etc. besides the gestalt using the semiconductor memory of the internal organs explained with the gestalt of above-mentioned operation.

[0102] Moreover, also when using the semiconductor memory of internal organs for the storage section 53, the gestalt which communicates by infrared ray communication etc. besides using the terminal 12-2 for data I/O and an interconnection cable is possible for the exchange of data with an external information terminal.

[0103] Although the gestalt and example of desirable operation were given above and this invention was explained, this invention is not necessarily limited to the gestalt and example of the above-mentioned implementation, can deform within the limits of the technical thought variously, and can be carried out.

[0104]

[Effect of the Invention] When using the 1st effectiveness as a TV phone, it becomes possible to tell the scenery that their face and a one are seeing, easily to the other party simultaneously. The reason is that it can send an image by easy actuation by equipping the lens for photography two sets and having a changeover switch.

[0105] It becomes possible to offer the personal digital assistant it becomes possible for the 2nd effectiveness various to operate, such as an animation, a still picture, alphabetic character mail, and a cellular phone. The reason is that it can take the structure of being suitable for various activity gestalten since each 2 preparation can set a revolving shaft as a free include angle.

[0106] It becomes possible in a personal computer to a transfer and an image to transmit at a personal digital assistant side about the image which photoed the 3rd effectiveness easily at information processors, such as a personal computer. The reason is that it makes it possible to connect with other devices simply without storages, such as memory card, by establishing the interface for data I/O.

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[Translation done.]

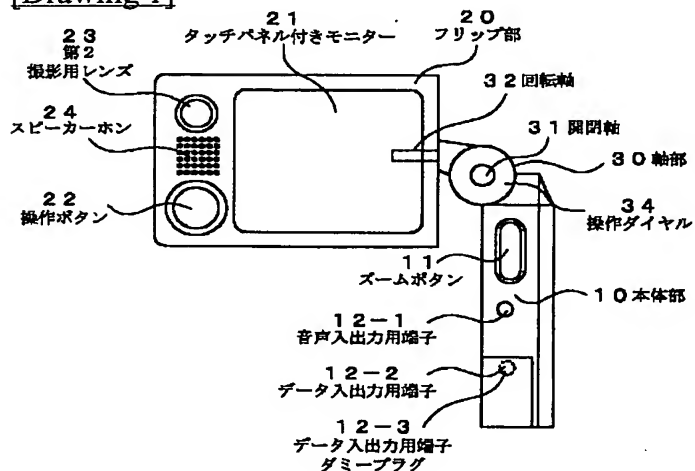
## \* NOTICES \*

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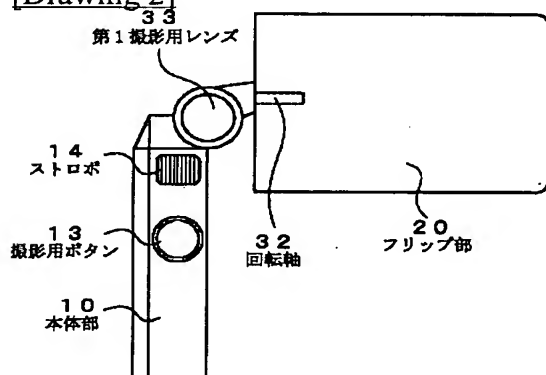
- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

## DRAWINGS

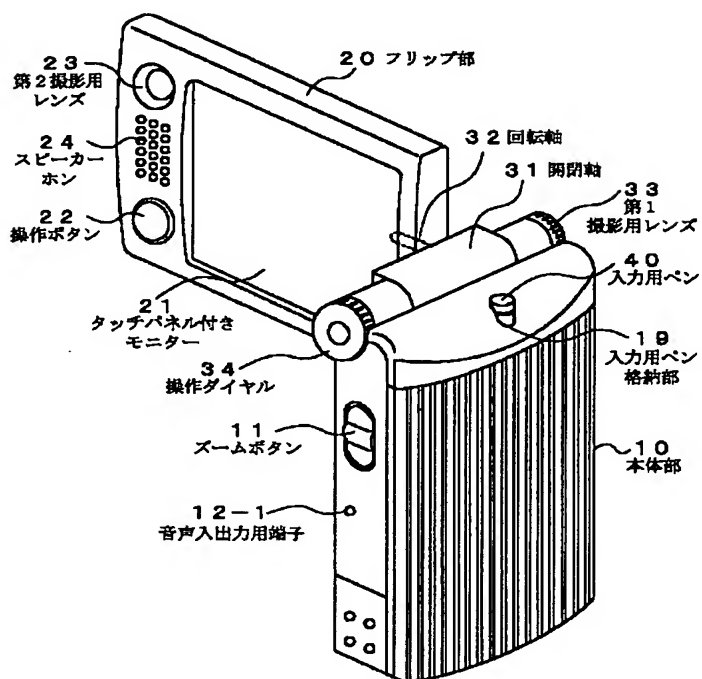
[Drawing 1]



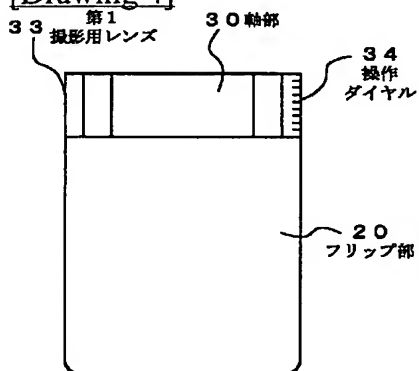
[Drawing 2]



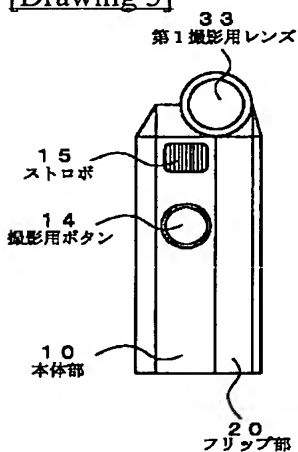
[Drawing 3]



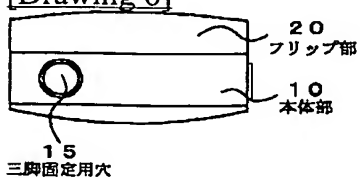
[Drawing 4]



[Drawing 5]

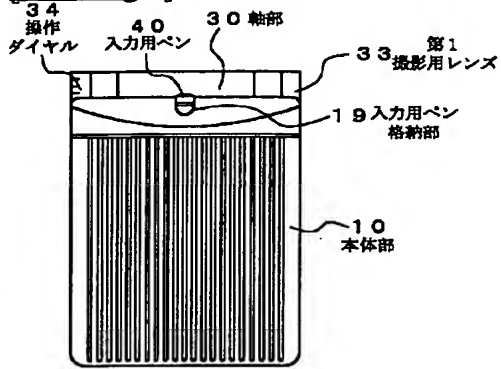


[Drawing 6]

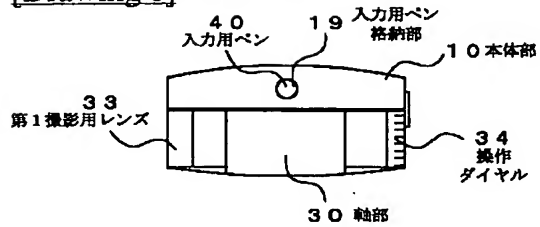




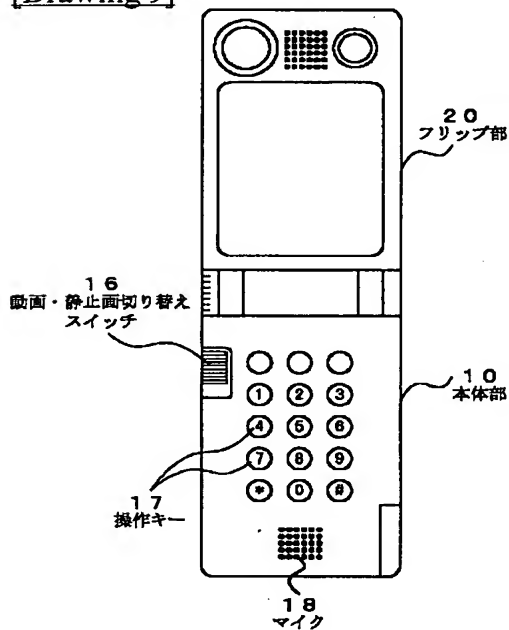
[Drawing 7]



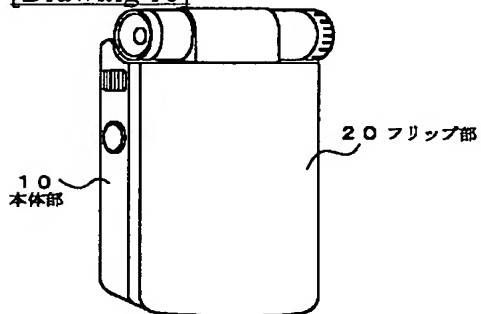
[Drawing 8]



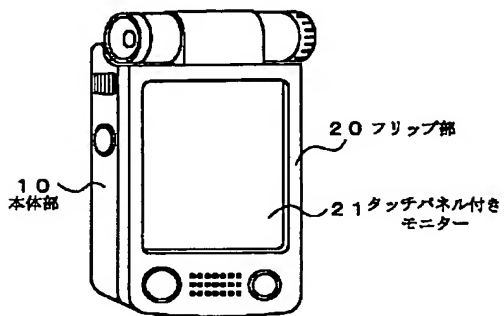
[Drawing 9]



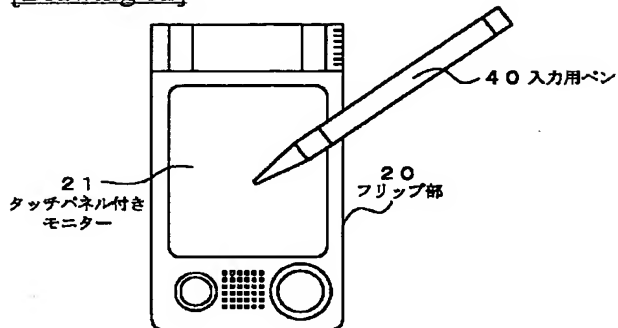
[Drawing 10]



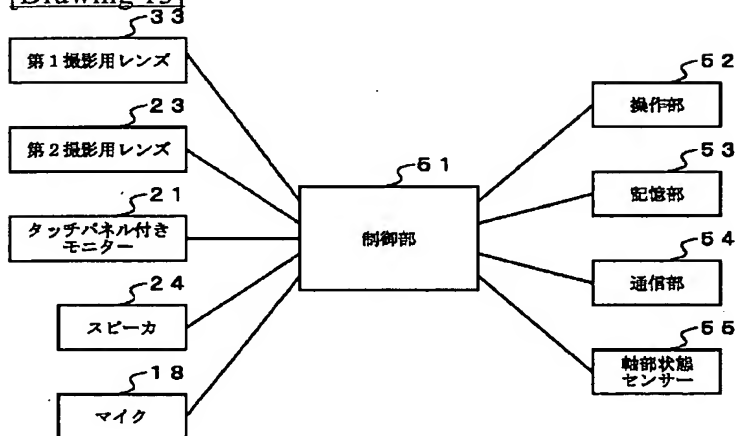
[Drawing 11]



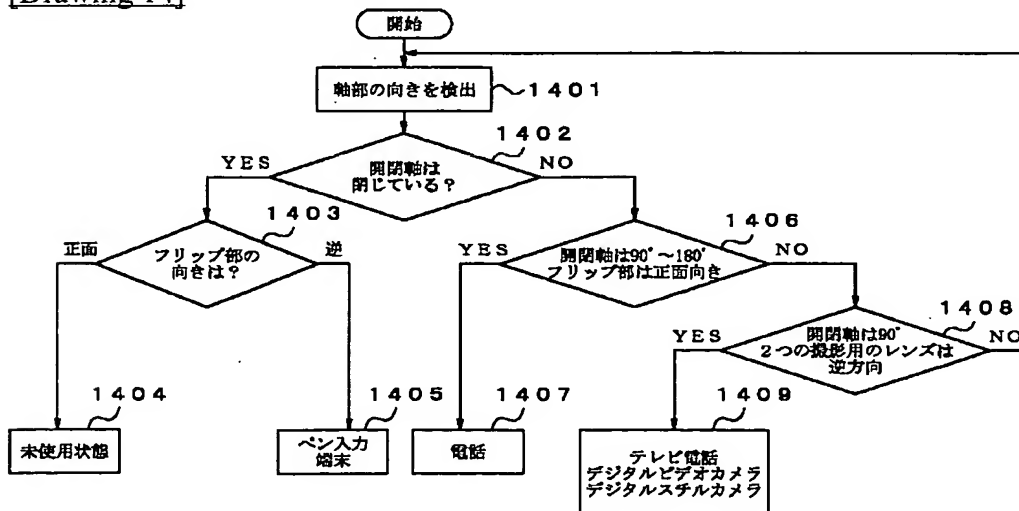
[Drawing 12]



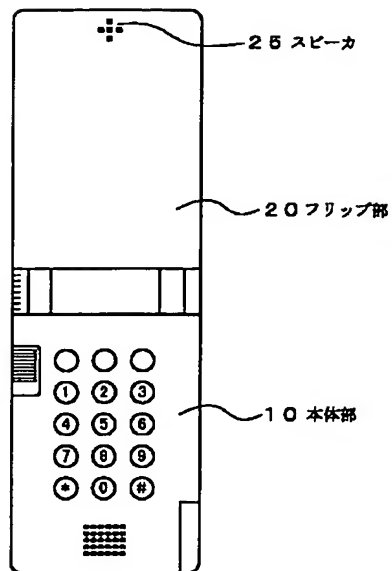
[Drawing 13]



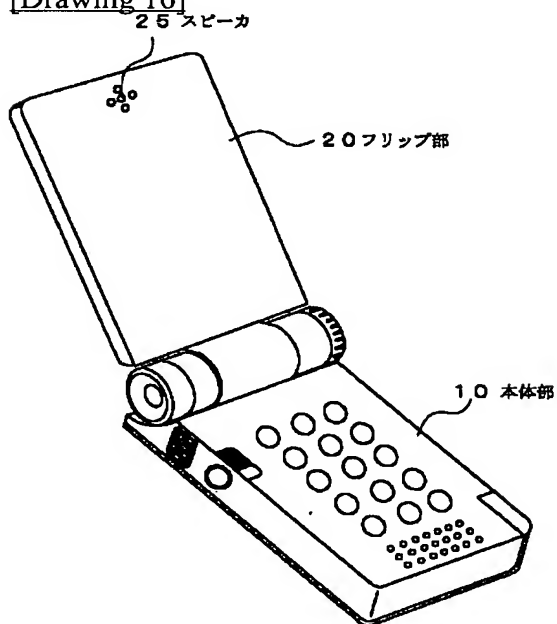
[Drawing 14]



[Drawing 15]



[Drawing 16]



[Translation done.]

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**CORRECTION OR AMENDMENT**


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[Kind of official gazette] Printing of amendment by the convention of 2 of Article 17 of Patent Law  
 [Category partition] The 3rd partition of the 7th category  
 [Publication date] June 7, Heisei 14 (2002. 6.7)

[Publication No.] JP,2001-169166,A (P2001-169166A)  
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 [Annual volume number] Open patent official report 13-1692  
 [Application number] Japanese Patent Application No. 11-354459  
 [The 7th edition of International Patent Classification]

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 H04Q 7/32  
 7/38  
 H04M 1/00  
 1/02  
 1/21  
 H04N 7/14

**[FI]**

H04N 5/225 Z  
 H04M 1/00 U  
 1/02 C  
 1/21 Z  
 H04N 7/14  
 G06F 1/00 312 F  
 312 Z  
 H04B 7/26 V  
 109 H  
 109 M

[Procedure amendment]  
 [Filing Date] March 11, Heisei 14 (2002. 3.11)  
 [Procedure amendment 1]  
 [Document to be Amended] Description  
 [Item(s) to be Amended] Claim  
 [Method of Amendment] Modification  
 [Proposed Amendment]  
 [Claim(s)]

[Claim 1] In the personal digital assistant which comes to connect the body section and the flip section equipped with a monitoring screen by the shank rotatable,  
 To the longitudinal direction in said shank  
 The lens for the 1st photography is contained and prepared,  
 In the predetermined part of said flip section  
 The personal digital assistant characterized by preparing the lens for the 2nd photography.  
 [Claim 2] In the personal digital assistant which comes to connect the body section and the flip section

equipped with a monitoring screen by the shank rotatable,

Said near shank

The lens for the 1st photography is prepared,

In the predetermined part of said flip section

The personal digital assistant characterized by preparing the lens for the 2nd photography.

[Claim 3] Said flip section,

Said lens for 2 photography is arranged to said monitoring screen side,

Said shank,

The personal digital assistant according to claim 1 or 2 characterized by having the structure which the field inside said body section and the field inside said flip section are contacted mutually, and closes them.

[Claim 4] It has the shank condition sensor which detects the include angle which said flip section and said body section accomplish, and physical relationship with the include angle which the amount of [ of said shank ] moving part accomplishes,

The personal digital assistant according to claim 3 characterized by having a means to choose and perform the function beforehand specified based on the include angle and physical relationship which said flip section which said shank condition sensor detects, and said body section constitute from various kinds of usable functions with which a personal digital assistant is equipped.

[Claim 5] It has a microphone inside said body section,

It has a loudspeaker inside said flip section,

It has the communications department which communicates voice,

When the field inside said body section and the field inside said flip section turn to the same approach and are mutually opened in it

The personal digital assistant according to claim 4 characterized by having the means which makes the call function by the radiocommunication circuit ready condition.

[Claim 6] Said body section is equipped with a microphone in one field,

The outside of said flip section is equipped with a loudspeaker,

It has the communications department which communicates voice,

When a field equipped with said microphone of said body section and the field of the outside of said flip section turn to the same approach and are mutually opened in it

The personal digital assistant according to claim 4 or 5 characterized by having the means which makes the call function by the radiocommunication circuit ready condition.

[Claim 7] It has a loudspeaker inside said flip section,

Said communications department,

It has the means of communications of an image,

When a field equipped with said microphone of said body section and the field inside said flip section turn to the same approach and are mutually opened in it

The personal digital assistant according to claim 5 or 6 characterized by having the means which makes ready condition the call function of the TV phone by the radiocommunication circuit.

[Claim 8] It has the information processing section which processes the inputted information and an instruction,

Said monitoring screen,

It considers as a monitor with a touch panel,

When the field of the outside of said flip section and one field of said body section contact mutually and are closed,

The personal digital assistant of any one publication of claim 4 to claim 7 characterized by having the means which makes ready condition the function of the information which received the input from said touch panel and was inputted, or the information terminal which processes an instruction.

[Claim 9] A storage means to record electronic data,

It has a means to change into electronic data the static image which said lens for the 1st photography and said lens for the 2nd photography photo,

When said body section and said flip section are opened for the sense of said lens for the 1st photography, and the sense of said lens for the 2nd photography to hard flow,

The personal digital assistant of any one publication of claim 5 to claim 8 characterized by having the means which makes the function of photography as a digital camera ready condition.

[Claim 10] It has a means to change into electronic data the dynamic image which said lens for the 1st photography and said lens for the 2nd photography photo,

When said body section and said flip section are opened for the sense of said lens for the 1st photography, and the sense of said lens for the 2nd photography to hard flow,

The personal digital assistant according to claim 9 characterized by having the means which makes the function of photography as a digital camcorder ready condition.

[Claim 11] When the field inside said body section and the field inside said flip section carry out contact and are each-other closed,

The personal digital assistant of any one publication of claim 5 to claim 10 characterized by having a means to suspend the function which judges that it is in current the condition of not using it, is beforehand set up as an object of a post process among the functions under current starting, and is required.

[Claim 12] The personal digital assistant of any one publication of claim 1 to claim 11 characterized by having a storage means to record electronic data.

[Claim 13] It has a means to change into electronic data the static image which said lens for the 1st photography and said lens for the 2nd photography photo,

The personal digital assistant according to claim 12 characterized by recording said photoed static image on said storage means as a digital camera.

[Claim 14] It has a means to change into electronic data the dynamic image which said lens for the 1st photography and said lens for the 2nd photography photo,

The personal digital assistant according to claim 13 characterized by recording said photoed dynamic image on said storage means as a digital camcorder.

[Claim 15] It has the communications department which performs the communication link of an image and voice,

The personal digital assistant of any one publication of claim 1 to claim 14 characterized by having a means to transmit the image photoed with said lens for the 1st photography, and said lens for the 2nd photography through said communications department.

[Claim 16] Said body section,

It has a microphone,

Said flip section,

The personal digital assistant according to claim 15 characterized by having a loudspeaker and performing the call by the radiocommunication circuit by said communications department.

[Claim 17] The image which said communications department received is displayed on said monitoring screen, the voice which said communications department received is reproduced by said loudspeaker, and it has a means to transmit the voice inputted into the image photoed with said lens for the 1st photography, and said lens for the 2nd photography, and said microphone,

The personal digital assistant according to claim 16 characterized by performing the call by the TV phone by said communications department.

[Claim 18] It has the information processing section which processes the inputted information and an instruction, and is said monitoring screen,

It considers as a monitor with a touch panel,

The personal digital assistant of any one publication of claim 1 to claim 17 characterized by having a means to receive the input from said touch panel and to process the inputted information and an instruction.

[Claim 19] The personal digital assistant according to claim 18 characterized by receiving the input to said monitoring screen which is said monitor with a touch panel using an input pen.

[Claim 20] It has the manual operation button which directs the class of image displayed on said monitoring screen to said control section,

The personal digital assistant of any one publication of claim 1 to claim 19 characterized by changing the class of image displayed on said monitoring screen according to the directions from said manual operation button.

[Claim 21] A means to display the image which said lens for the 1st photography photos on said monitoring screen,

A means to display the image which said lens for the 2nd photography photos on said monitoring screen,

It has a means to display simultaneously the both sides of the image which said lens for the 1st photography photos to said monitoring screen, and the image which said lens for the 2nd photography photos on the part in said monitoring screen to which it was set by each,

The personal digital assistant according to claim 20 characterized by changing the class of image displayed on said monitoring screen according to the directions from said manual operation button.

[Claim 22] It has the I/O section which connects with external information machines and equipment, and

performs the communication link by the electrical signal,

The personal digital assistant of any one publication of claim 1 to claim 21 characterized by performing the information machines and equipment of said exterior, and bidirectional data transfer through said I/O section.

[Claim 23] The personal digital assistant of any one publication of claim 1 to claim 22 characterized by having the voice-input/output terminal which transmits and receives a sound signal.

[Claim 24] Said shank,

The center of one side with said flip section and the center of one side with said body section are connected movable,

The closing motion shaft connected so that the both sides of said flip section and said body section may open and close one connected side freely as a core,

The personal digital assistant of any one publication of claim 1 to claim 23 characterized by having the revolving shaft which said flip section connects so that it may rotate freely to said closing motion shaft.

[Claim 25] The body section and the flip section equipped with a monitoring screen are the personal digital assistants connected by the connection possible [ folding ],

The personal digital assistant characterized by attaching in said flip section further the direction which intersects perpendicularly with said connection shaft pivotable as a shaft.

[Claim 26] The personal digital assistant according to claim 25 characterized by preparing said connection the lens for photography.

[Claim 27] The condition sensor for detecting the physical relationship of said body section and said flip section,

The personal digital assistant according to claim 25 characterized by having a means to perform selectively the function beforehand matched with said physical relationship by detecting said physical relationship as which said condition sensor was specified beforehand.

[Claim 28] The body section and the flip section equipped with a monitoring screen are the personal digital assistants connected by the connection possible [ folding ],

Said personal digital assistant is a personal digital assistant characterized by having a means to perform selectively the function beforehand matched with said physical relationship by being able to perform two or more functions and detecting said physical relationship as which the condition sensor and said condition sensor for detecting the physical relationship of said body section and said flip section were specified beforehand.

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[Translation done.]



## PATENT ABSTRACTS OF JAPAN

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 H04M 1/21  
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(21)Application number : 11-354459

(71)Applicant : NEC CORP

(22)Date of filing : 14.12.1999

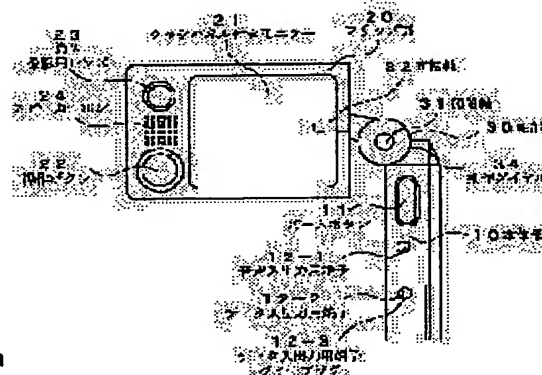
(72)Inventor : SHIBATA JUNICHIRO  
YAMAGUCHI SHUJI

## (54) PORTABLE TERMINAL

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a multifunctional portable terminal which is provided with a function of a video telephone or a video camera by which a user can simultaneously send a scene which the user is viewing and his expression, a pen entry function, and a data communication function and is miniaturized without impairing portability.

**SOLUTION:** This portable terminal is provided with a device main part 10, a revolving shaft part 30, and a flip part 20, and the device main body part 10 has a microphone 18, a key operation part 17, and an image and voice radio transmission/reception function 54, and the revolving shaft part 30 is provided with a video camera 33 and an operation dial 34, and, and the flip part 20 is provided with a video display part 21 which displays an image photographed by the video camera 33, a received image, and an image for input operation and is provided with a touch panel, a CCD camera 23, a loudspeaker 24, and an operation button 22, and the revolving shaft part 30 is provided with an open/close shaft 31, which couples the device body part 10 and the flip part 20 so that they can be rotated relative to each other, and a revolving shaft 32 which couples the flip part so that it can be rotated in a horizontal direction different from the rotation direction, and the portable terminal is used as a video camera with a monitor, when the flip part is rotated in the opening horizontal direction.



## LEGAL STATUS

[Date of request for examination]

14.11.2000

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

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[Patent number]

3546784

[Date of registration]

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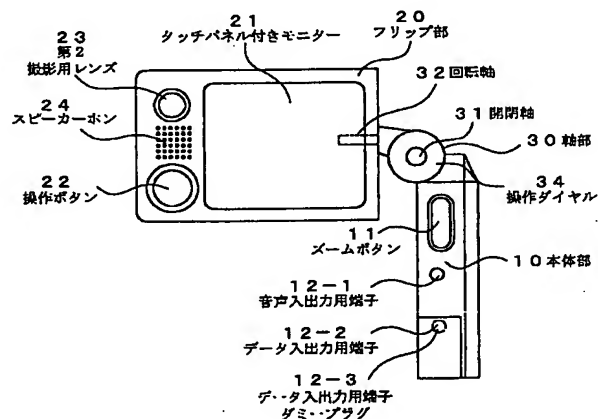
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(54) 【発明の名称】 携帯端末

(57) 【要約】

【課題】 自分の見ている風景と自分の表情を同時に送ることができるテレビ電話やビデオカメラの機能、ペン入力機能、データ通信機能を持ち、かつ携帯性を損わずに小型化された多機能な携帯端末を提供する。

【解決手段】 マイク18とキー操作部17、画像及び音声の無線送受信機能54を持った装置本体部10と、ビデオカメラ33と操作ダイヤル34を備えた回転軸部30、ビデオカメラ33で撮影した映像や受信した画像、及び入力操作画面が表示可能でかつタッチパネルを装備した映像表示部21、該映像表示部21とCCDカメラ23、スピーカー24及び操作ボタン22を備えたフリップ部20とを備え、回転軸部30は上記装置本体部10とフリップ部20を互いに相対回転可能であるように連結する開閉軸31と、フリップ部を前述回転方向と異なる横方向に回転可能に連結する回転軸32を備え、フリップ部を開き横方向に回転させた場合にモニター付きビデオカメラとして使用することを特徴とする。



## 【特許請求の範囲】

【請求項1】 本体部と、モニター画面を備えるフリップ部とを回転自在な軸部により連結してなる携帯端末において、

前記軸部内の長手方向に、

第1撮影用レンズを収納して設け、

前記フリップ部の所定個所に、

第2撮影用レンズを設けたことを特徴とする携帯端末。

【請求項2】 本体部と、モニター画面を備えるフリップ部とを回転自在な軸部により連結してなる携帯端末において、

前記軸部の近傍に、

第1撮影用レンズを設け、

前記フリップ部の所定個所に、

第2撮影用レンズを設けたことを特徴とする携帯端末。

【請求項3】 前記フリップ部は、

前記モニター画面側に、前記第1撮影用レンズを配置し、前記軸部は、

前記本体部の内側の面と前記フリップ部の内側の面とを互いに接触させて閉じる構造を備えることを特徴とする請求項1又は請求項2に記載の携帯端末。

【請求項4】 前記軸部の可動部分が成す角度により、前記フリップ部と前記本体部とが成す角度や位置関係を検出する軸部状態センサーを備え、携帯端末が備える使用可能な各種の機能から、前記軸部状態センサーが検出する前記フリップ部と前記本体部とが成す角度や位置関係に基づいて予め指定された機能を選択し実行する手段を備えることを特徴とする請求項3に記載の携帯端末。

【請求項5】 前記本体部の内側にマイクを備え、前記フリップ部の内側にスピーカを備え、音声の通信を行う通信部を備え、前記本体部の内側の面と前記フリップ部の内側の面とが互いに同一方法を向いて開かれている場合に無線通信回線による通話機能を実行可能状態にする手段を備えることを特徴とする請求項4に記載の携帯端末。

【請求項6】 前記本体部に一方の面にマイクを備え、前記フリップ部の外側にスピーカを備え、音声の通信を行う通信部を備え、前記本体部の前記マイクを備える面と前記フリップ部の外側の面とが互いに同一方法を向いて開かれている場合に無線通信回線による通話機能を実行可能状態にする手段を備えることを特徴とする請求項4又は請求項5に記載の携帯端末。

【請求項7】 前記フリップ部の内側にスピーカを備え、前記通信部は、画像の通信手段を備え、前記本体部の前記マイクを備える面と前記フリップ部の内側の面とが互いに同一方法を向いて開かれている場合

に無線通信回線によるテレビ電話の通話機能を実行可能状態にする手段を備えることを特徴とする請求項5又は請求項6に記載の携帯端末。

【請求項8】 入力された情報や命令を処理する情報処理部を備え、

前記モニター画面は、

タッチパネル付きモニターとし、

前記フリップ部の外側の面と前記本体部の一方の面とが互いに接触して閉じられている場合に、

前記タッチパネルからの入力を受け付けて入力された情報や命令を処理する情報端末の機能を実行可能状態にする手段を備えることを特徴とする請求項4から請求項7のいずれか一つに記載の携帯端末。

【請求項9】 電子データを記録する記憶手段と、前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する静止画像を電子データに変換する手段を備え、前記第1撮影用レンズの向きと前記第2撮影用レンズの向きとが逆方向に、前記本体部と前記フリップ部が開かれている場合に、

デジタルカメラとしての撮影の機能を実行可能状態にする手段を備えることを特徴とする請求項5から請求項8のいずれか一つに記載の携帯端末。

【請求項10】 前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する動画を電子データに変換する手段を備え、

前記第1撮影用レンズの向きと前記第2撮影用レンズの向きとが逆方向に、前記本体部と前記フリップ部が開かれている場合に、

デジタルビデオカメラとしての撮影の機能を実行可能状態にする手段を備えることを特徴とする請求項9に記載の携帯端末。

【請求項11】 前記本体部の内側の面と前記フリップ部の内側の面とが互いに接触し閉じられている場合に、現在未使用の状態にあると判断し、現在起動中の機能の内、終了処理の対象として予め設定されている機能を停止する手段を備えることを特徴とする請求項5から請求項10のいずれか一つに記載の携帯端末。

【請求項12】 電子データを記録する記憶手段を備えることを特徴とする請求項1から請求項11のいずれか一つに記載の携帯端末。

【請求項13】 前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する静止画像を電子データに変換する手段を備え、デジタルカメラとして、撮影した前記静止画像を前記記憶手段に記録することを特徴とする請求項12に記載の携帯端末。

【請求項14】 前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する動画を電子データに変換する手段を備え、

デジタルビデオカメラとして、撮影した前記動画を前

記憶手段に記録することを特徴とする請求項 13 に記載の携帯端末。

【請求項 15】 画像及び音声の通信を行う通信部を備え、  
前記第 1 撮影用レンズ及び前記第 2 撮影用レンズにより撮影した映像を前記通信部を介して送信する手段を備えることを特徴とする請求項 1 から請求項 14 のいずれか一つに記載の携帯端末。

【請求項 16】 前記本体部は、  
マイクを備え、  
前記フリップ部は、  
スピーカを備え、  
前記通信部により無線通信回線による通話を行うことを特徴とする請求項 15 に記載の携帯端末。

【請求項 17】 前記通信部が受信した映像を前記モニター画面に表示し、前記通信部が受信した音声の前記スピーカにより再生し、前記第 1 撮影用レンズ及び前記第 2 撮影用レンズにより撮影した映像と前記マイクに入力される音声を送信する手段を備え、  
前記通信部によりテレビ電話による通話を行うことを特徴とする請求項 16 に記載の携帯端末。

【請求項 18】 入力された情報や命令を処理する情報処理部を備え、  
前記モニター画面は、  
タッチパネル付きモニターとし、  
前記タッチパネルからの入力を受け付けて、入力された情報や命令を処理する手段を備えることを特徴とする請求項 1 から請求項 17 のいずれか一つに記載の携帯端末。

【請求項 19】 入力ペンをを用いて、前記タッチパネル付きモニターである前記モニター画面に対する入力を受け付けることを特徴とする請求項 18 に記載の携帯端末。

【請求項 20】 前記モニター画面に表示する画像の種類を前記制御部に指示する操作ボタンを備え、  
前記操作ボタンからの指示に従い前記モニター画面に表示する画像の種類を切り替えることを特徴とする請求項 1 から請求項 19 のいずれか一つに記載の携帯端末。

【請求項 21】 前記モニター画面に前記第 1 撮影用レンズが撮影する画像を表示する手段と、  
前記モニター画面に前記第 2 撮影用レンズが撮影する画像を表示する手段と、  
前記モニター画面に前記第 1 撮影用レンズが撮影する画像と、前記第 2 撮影用レンズが撮影する画像の双方を同時に、それぞれに定められた前記モニター画面内の部分に表示する手段を備え、  
前記操作ボタンからの指示に従い前記モニター画面に表示する画像の種類を切り替えることを特徴とする請求項 20 に記載の携帯端末。

【請求項 22】 外部の情報機器と接続し電気信号によ

る通信を行う入出力部を備え、  
前記入出力部を介して、前記外部の情報機器と双方向のデータ転送を行うことを特徴とする請求項 1 から請求項 21 のいずれか一つに記載の携帯端末。

【請求項 23】 音声信号の送受信を行う音声入出力端子を備えることを特徴とする請求項 1 から請求項 22 のいずれか一つに記載の携帯端末。

【請求項 24】 前記軸部は、  
前記フリップ部のある一辺の中央と前記本体部のある一辺の中央とを可動に連結し、  
前記フリップ部と前記本体部との双方が、連結している一辺を中心として自由に開閉するように連結する開閉軸と、  
前記フリップ部が、前記開閉軸に対して自由に回転するように連結する回転軸とを備えることを特徴とする請求項 1 から請求項 23 のいずれか一つに記載の携帯端末。

【発明の詳細な説明】

【0001】

【発明が属する技術分野】本発明は、携帯端末に関し、特に電話機能、テレビ電話機能、デジタルカメラ機能、デジタルビデオカメラ機能、ペン入力端末等の多くの機能をコンパクトに実現する小型の携帯端末に関する。

【0002】

【従来の技術】携帯端末は、通信・画像・情報等の処理機能を備える小型の機器であり、持ち運びに便利であり携帯に優れている。

【0003】従来、一般に広く利用されている携帯端末には、例えば携帯電話や PHS や、テレビ電話や、デジタルカメラ、デジタルビデオカメラ、ペン入力による通信端末や情報端末等がある。

【0004】また最近では、これらの内の複数の機能を合わせて備える携帯端末も登場している。この方式においては、複数の機能を一台に合わせるため、同時に複数の種類の携帯端末を持ち運ぶ必要が解消され、携帯端末の目的である携帯性が向上するという利点がある。

【0005】さらに、複数の携帯端末に共通して必要とする装置や機能も多いため、複数の機能を一台に合わせて備える場合においては、これら共通する装置を共用することができ、軽重で小型である携帯端末の特性を失うことなく複数の機能を合わせて備えることが可能である。

【0006】このように、複数の機能を一台に合わせて備える携帯端末は、各種の機能を備える携帯端末を個別に備える方式と比較するならば、電力の消費が少なく保守性や携帯性に優れ、共通する装置を共用できるため生産コストが低く購入価格が安くできる等のはるかに優れた多くの利点を持つ。

【0007】従来の、複数の機能を一台に合わせて備える携帯端末の例として、特開平 06-292195 号公

報に開示された技術があり、液晶モニター・CCDカメラ・スピーカー・通信機能を備え、携帯電話と携帯テレビ電話の機能を実現する携帯端末が提案されている。

【0008】また、この特開平06-292195号公報の携帯端末を含め一般に、従来の携帯端末による携帯テレビ電話は、CCDカメラを液晶モニターの隣でかつ携帯端末の表面の液晶モニターと同一面上に設置する形態を採用している。

【0009】これにより、利用者は液晶モニターに表示される受信した画像を見ながら、液晶モニターの隣に設置されたCCDカメラにより、互いの顔画像を撮影し通話相手に送信することにより携帯テレビ電話の機能を実現するのである。

【0010】また、この特開平06-292195号公報の携帯端末を含めて、従来の携帯端末では、携帯端末の装置本体部とほぼ同面積の（又はより小さい面積の）フリップ部を設け、このフリップ部と本体部の両者が貝殻のように自在に開閉するように可動な軸部を用いて連結する形態も多く採用されている。この場合、携帯端末を装置本体部により手で支持するため、主に装置本体部に操作ボタンを備え、液晶モニターをフリップ部に備える方式が一般である。

【0011】この形態では、フリップ部と本体部の双方に、閉じた場合に外部に触れない内側の面ができ、この内側になる面に液晶モニターや各種の操作ボタン等を配置することができる。このため、使用しない時には小さく閉じることにより液晶モニターの損傷や操作ボタンの誤操作が防止でき、優れた携帯性が実現できる。

【0012】

【発明が解決しようとする課題】 上述したように従来の携帯端末では、以下に述べるような問題点があった。

【0013】第1に、電話機能、テレビ電話機能、デジタルカメラ機能、デジタルビデオカメラ機能、ペン入力端末等の携帯端末の複数の機能を、一台に合わせて備える方式を採用することにより実に多くの利点が実現できるにも関わらず、従来の携帯端末では、同時に兼ね備えられる機能の数はわずかに2、3の機能でしか実現できなかった。特に、上述の全ての機能を兼ね備えることの可能な携帯端末は実現できなかった。

【0014】これは、小型で軽量の携帯端末内に複数の機能を同時に備えるために、回路や装置構成が複雑化することになり、さらに操作性も悪化し、これらの障害が解消できなかったためである。

【0015】第2に、携帯テレビ電話の機能では、携帯端末の携帯性を有効利用し、外出先等において様々な風景や物体の画像を送信する利用形態が求められるのに対して、従来の携帯端末による携帯テレビ電話は、こうした自分の顔以外の画像の撮影にはきわめて不便である。

【0016】これは、従来ではCCDカメラを一つのみ、液晶モニターの隣でかつ本体装置の液晶モニターと

同一の面上に設置する形態であったためであり、周りの景色等自分の顔以外の画像の撮影するためには、撮影用レンズの向きを変えることが必要になるためである。

【0017】また、この場合利用者は、液晶モニターの表示を見ることができない。上述の形態のCCDカメラは、顔画像の撮影に適するレンズからすぐ近くの位置に焦点が設定されているため、周りの景色等を撮影するためには、レンズの焦点を合わせるためにも液晶モニターの参照が必要である。

10 【0018】第3に、上述した従来の、装置本体部にフリップ部を可動に連結する携帯端末では、電話機能、テレビ電話機能、デジタルカメラ機能、デジタルビデオカメラ機能、ペン入力端末等の携帯端末が可能な様々な機能の実行において、各機能の実行に最適な方向に装置本体部とフリップ部とを向けることが望まれる。しかし、従来の携帯端末では、フリップ部と本体部の間で単に開閉の動作ができるのみであり、その他柔軟な方向に向きを合わせることができなかった。

20 【0019】本発明の第1の目的は、上記従来技術の欠点を解決し、携帯テレビ電話やデジタルビデオカメラやデジタルスチルカメラの機能を持ち、かつ携帯性を損なわない携帯端末を提供することである。また、ペン入力可能なタッチパネルを装備し、テレビ電話だけでなくデータ通信についても機能を充実させた携帯端末を提供することである。

【0020】本発明の第2の目的は、上記従来技術の欠点を解決し、利用者の側から見える周りの風景等の画像の通話先への送信が容易にできる携帯テレビ電話の機能を備える携帯端末を提供することである。

30 【0021】本発明の第3の目的は、上記従来技術の欠点を解決し、装置本体部とフリップ部との向きを、柔軟に各機能の実行に最適な方向に向けることのできる携帯端末を提供することである。

【0022】

【課題を解決するための手段】 上記目的を達成するため本発明の携帯端末は、本体部と、モニター画面を備えるフリップ部とを回転自在な軸部により連結してなる携帯端末において、前記軸部内の長手方向に、第1撮影用レンズを収納して設け、前記フリップ部の所定箇所に、第2撮影用レンズを設けたことを特徴とする。

40 【0023】請求項2に記載の携帯端末は、本体部と、モニター画面を備えるフリップ部とを回転自在な軸部により連結してなる携帯端末において、前記軸部の近傍に、第1撮影用レンズを設け、前記フリップ部の所定箇所に、第2撮影用レンズを設けたことを特徴とする。

50 【0024】請求項3に記載の携帯端末の前記フリップ部は、前記モニター画面側に、前記2撮影用レンズを配置し、前記軸部は、前記本体部の内側の面と前記フリップ部の内側の面とを互いに接触させて閉じる構造を備えることを特徴とする。

【0025】請求項4に記載の携帯端末は、前記軸部の可動部分が成す角度により、前記フリップ部と前記本体部とが成す角度や位置関係を検出する軸部状態センサーを備え、携帯端末が備える使用可能な各種の機能から、前記軸部状態センサーが検出する前記フリップ部と前記本体部とが成す角度や位置関係に基づいて予め指定された機能を選択し実行する手段を備えることを特徴とする。

【0026】請求項5に記載の携帯端末は、前記本体部の内側にマイクを備え、前記フリップ部の内側にスピーカを備え、音声の通信を行う通信部を備え、前記本体部の内側の面と前記フリップ部の内側の面とが互いに同一方法向いて開かれている場合に無線通信回線による通話機能を実行可能状態にする手段を備えることを特徴とする。

【0027】請求項6に記載の携帯端末は、前記本体部に一方の面にマイクを備え、前記フリップ部の外側にスピーカを備え、音声の通信を行う通信部を備え、前記本体部の前記マイクを備える面と前記フリップ部の外側の面とが互いに同一方法向いて開かれている場合に無線通信回線による通話機能を実行可能状態にする手段を備えることを特徴とする。

【0028】請求項7に記載の携帯端末は、前記フリップ部の内側にスピーカを備え、前記通信部は、画像の通信手段を備え、前記本体部の前記マイクを備える面と前記フリップ部の内側の面とが互いに同一方法向いて開かれている場合に無線通信回線によるテレビ電話の通話機能を実行可能状態にする手段を備えることを特徴とする。

【0029】請求項8に記載の携帯端末は、入力された情報や命令を処理する情報処理部を備え、前記モニター画面は、タッチパネル付きモニターとし、前記フリップ部の外側の面と前記本体部の一方の面とが互いに接触して閉じられている場合に、前記タッチパネルからの入力を受け付けて入力された情報や命令を処理する情報端末の機能を実行可能状態にする手段を備えることを特徴とする。

【0030】請求項9に記載の携帯端末は、電子データを記録する記憶手段と、前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する静止画像を電子データに変換する手段を備え、前記第1撮影用レンズの向きと前記第2撮影用レンズの向きとが逆方向に、前記本体部と前記フリップ部が開かれている場合に、デジタルカメラとしての撮影の機能を実行可能状態にする手段を備えることを特徴とする。

【0031】請求項10に記載の携帯端末は、前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する動画像を電子データに変換する手段を備え、前記第1撮影用レンズの向きと前記第2撮影用レンズの向きとが逆方向に、前記本体部と前記フリップ部が開かれている場合

に、デジタルビデオカメラとしての撮影の機能を実行可能状態にする手段を備えることを特徴とする。

【0032】請求項11に記載の携帯端末は、前記本体部の内側の面と前記フリップ部の内側の面とが互に接触し閉じられている場合に、現在未使用の状態にあると判断し、現在起動中の機能の内、終了処理の対象として予め設定されている機能を停止する手段を備えることを特徴とする。

【0033】請求項12に記載の携帯端末は、電子データを記録する記憶手段を備えることを特徴とする。

【0034】請求項13に記載の携帯端末は、前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する静止画像を電子データに変換する手段を備え、デジタルカメラとして、撮影した前記静止画像を前記記憶手段に記録することを特徴とする。

【0035】請求項14に記載の携帯端末は、前記第1撮影用レンズ及び前記第2撮影用レンズが撮影する動画像を電子データに変換する手段を備え、デジタルビデオカメラとして、撮影した前記動画像を前記記憶手段に記録することを特徴とする。

【0036】請求項15に記載の携帯端末は、画像及び音声の通信を行う通信部を備え、前記第1撮影用レンズ及び前記第2撮影用レンズにより撮影した映像を前記通信部を介して送信する手段を備えることを特徴とする。

【0037】請求項16に記載の携帯端末の前記本体部は、マイクを備え、前記フリップ部は、スピーカを備え、前記通信部により無線通信回線による通話を行うことを特徴とする。

【0038】請求項17に記載の携帯端末は、前記通信部が受信した映像を前記モニター画面に表示し、前記通信部が受信した音声を前記スピーカにより再生し、前記第1撮影用レンズ及び前記第2撮影用レンズにより撮影した映像と前記マイクに入力される音声を送信する手段を備え、前記通信部によりテレビ電話による通話を行うことを特徴とする。

【0039】請求項18に記載の携帯端末は、入力された情報や命令を処理する情報処理部を備え、前記モニター画面は、タッチパネル付きモニターとし、前記タッチパネルからの入力を受け付けて、入力された情報や命令を処理する手段を備えることを特徴とする。

【0040】請求項19に記載の携帯端末は、入力ペンを用いて、前記タッチパネル付きモニターである前記モニター画面に対する入力を受け付けることを特徴とする。

【0041】請求項20に記載の携帯端末は、前記モニター画面に表示する画像の種類を前記制御部に指示する操作ボタンを備え、前記操作ボタンからの指示に従い前記モニター画面に表示する画像の種類を切り替えることを特徴とする。

【0042】請求項21に記載の携帯端末は、前記モニ

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ター画面に前記第 1 撮影用レンズが撮影する画像を表示する手段と、前記モニター画面に前記第 2 撮影用レンズが撮影する画像を表示する手段と、前記モニター画面に前記第 1 撮影用レンズが撮影する画像と、前記第 2 撮影用レンズが撮影する画像の双方を同時に、それぞれに定められた前記モニター画面内の部分に表示する手段を備え、前記操作ボタンからの指示に従い前記モニター画面に表示する画像の種類を切り替えることを特徴とする。

【0043】請求項 22 に記載の携帯端末は、外部の情報機器と接続し電気信号による通信を行う入出力部を備え、前記入出力部を介して、前記外部の情報機器と双方向のデータ転送を行うことを特徴とする。

【0044】請求項 23 に記載の携帯端末は、音声信号の送受信を行う音声入出力端子を備えることを特徴とする。

【0045】請求項 24 に記載の携帯端末の前記軸部は、前記フリップ部のある一辺の中央と前記本体部のある一辺の中央とを可動に連結し、前記フリップ部と前記本体部との双方が、連結している一辺を中心として自由に開閉するように連結する開閉軸と、前記フリップ部が、前記開閉軸に対して自由に回転するように連結する回転軸とを備えることを特徴とする。

【0046】

【発明の実施の形態】以下、本発明の実施の形態について図面を参照して詳細に説明する。

【0047】図 1 から図 12 は、本発明の第 1 の実施の形態による携帯端末の一実施例の、装置本体部とフリップ部とを様々な方向に向けた状態を、様々な方向から見た図である。

【0048】図 1 から図 12 を参照すると、本発明の実施の形態の携帯端末は、本体部 10 とフリップ部 20 とが軸部 30 を介し可動に連結されている。

【0049】軸部 30 は、図 1 に示すように開閉軸 31 と回転軸 32 を備える。開閉軸 31 は装置本体部とフリップ部が相対回転可能となるように、また回転軸 32 は開閉軸 31 の回転方向に対して垂直方向に回転可能となるよう連結するものである。

【0050】また開閉軸 31 には一方の端にデジタルカメラ用の第 1 撮影用レンズ 33、他方には操作ダイヤル 34 を有している。

【0051】フリップ部 20 は、図 1 に示すように内側にタッチパネル付きモニター 21、画面切り替え用の操作ボタン 22、テレビ電話用の第 2 撮影用レンズ 23、スピーカーホン 24 を備える。

【0052】装置の本体部 10 は、内側には図 9 に示すように電話番号を入力する操作キー 17、撮影する画像の種類を切り替える動画・静止画切り替えスイッチ 16、マイク 18 を備え、一方の側面には図 2 に示すようにストロボ 14、撮影用ボタン 13 を備え、他方の側面には図 1 に示すようにズームボタン 11、データ入出力

用端子 12-2、データ出力用ダミープラグ 12-3、音声入出力用端子 12-1 を備える。

【0053】また、本体部 10 には、ペン入力時に使用する入力用ペン 40 を格納する入力用ペン格納部 19 を備えている。

【0054】図 13 は、本実施の形態の形態端末の内部構造を示すブロック図である。

【0055】図 13 を参照すると、本実施の形態の形態端末は、制御部 51 により内部の他の各装置が制御され、第 1 撮影用レンズ 33、第 2 撮影用レンズ 23、タッチパネル付きモニター 21、スピーカー 24、マイク 18、利用者が各種動作を実行するための操作部 52、撮影した映像等を記録するための記憶部 53、無線通信回線等による通信を行う通信部 54、軸部 30 の状態を調べ本体部 10 とフリップ部 20 の成す方向を検知する軸部状態センサー 55 を備える。

【0056】本実施の形態の携帯端末は、電話機能、テレビ電話機能、デジタルカメラ機能、デジタルビデオカメラ機能、ペン入力端末等の様々な機能を、本体部 10 とフリップ部 20 を各機能のそれぞれに適した方向に向けて実施する。

【0057】次に、本実施の形態の携帯端末のこれら各機能を使用する一実施例を、それぞれの機能に適した本体部 10 とフリップ部 20 の向きと共に図面を参照して詳細に説明する。

【0058】図 4 から図 8 は、本実施の形態の携帯端末の未使用時における折り畳んだ状態を示す図である。

【0059】未使用時には、図 4 から図 8 に示すように本体部 10 とフリップ部 20 は開閉軸 31 を中心に折り畳まれている。このようにフリップ部 20 のタッチパネル付きモニター 21 や本体部 10 の操作キー 17 が内側に閉じられるため、外部との接触が無く、タッチパネル付きモニター 21 の損傷や操作キー 17 の誤操作が防止され携帯性に優れる。

【0060】テレビ電話機として使用する場合には、図 1、図 2 及び図 3 に示す様に、まず本体部 10 とフリップ部 20 を開閉軸 31 を中心に L 字型となる位置まで相対回転させ、次にフリップ部 20 を横方向に 90 度回転させる。

【0061】操作方法は、通常の携帯電話と同様に操作キー 17 を用いて電話をかける。会話はスピーカーホン 24 を通して行われる、また、音声入出力用端子 12-1 にマイクやヘッドホンを接続して使用することも可能である。

【0062】使用中、操作ボタン 22 を操作し、タッチパネル付きモニター 21 に表示する画面を様々な切り替えることができる。

【0063】ここで、タッチパネル付きモニター 21 に表示する画面は、テレビ電話の通話により送信される通話相手の画像のみには限られず、利用者の側から通話先

に送信する画像である第2撮影用レンズ23に撮影される自分の顔の画像や、第1撮影用レンズ33に撮影される利用者の目の前の風景や物体の画像を表示してもよく、また更に上記の画像を同時に表示する形態も可能である。

【0064】つまり、通話相手の画像と自分の顔の画像と利用者の目の前の画像の3種類の画像を様々に切り替え、又組み合わせることで表示するのである。

【0065】こうした画像の表示形態としては、第1にこれらの画像のうち一つをタッチパネル付きモニター21の全面に表示するものがあり、第2にこれらの画像のうち二つをタッチパネル付きモニター21に半分ずつ表示するもの、第3にこれら三つの画像をタッチパネル付きモニター21に三分の一ずつ表示するもの、第4にこれらの画像のうち一つをタッチパネル付きモニター21の全面に表示し、更に上に重ねて残る他の画像（のうち一つ又は二つ）を小さく子画面として表示するもの等が考えられる。

【0066】この第4の表示の形態における子画面の表示位置は、予め設定された位置に表示する形態や、入力用ペン40によりタッチパネル付きモニター21に表示位置や大きさを指定し、また表示後も任意の位置と大きさに変更できる形態や、予め設定されている複数の表示位置の設定の中から操作ボタン22を操作し選択して表示する形態等が考えられる。

【0067】また、タッチパネル付きモニター21に表示する画像の選択と同様にして、通話相手に送信する画像も上記の操作ボタン22の操作等により様々に選択できるものとすることができる。

【0068】これは、通常は通話相手に第2撮影用レンズ23に撮影される自分の顔の画像を送信するが、タッチパネル付きモニター21に表示する画像の選択に連動し、又は独立に、第1撮影用レンズ33に撮影される利用者の目の前の風景や物体の画像に切り替えたり組み合わせた画像を送信するものである。

【0069】以上のように、自分の顔の画像に限らず目の前の風景等の画像を容易に切り替えて送信することができるため、外出先等での風景の送信にとっても便利であり、本実施例の携帯端末のテレビ電話の機能は携帯端末の携帯性をよく生かすものである。

【0070】また、上述の形態では、利用者の目の前の風景の画像の送信を行っているが、単に自分の顔の画像のみを送信する形態も可能である。この場合には、本体部10とフリップ部20を開閉軸31を中心にL字型となる位置まで相対回転させて開くのみでもよく、フリップ部20を横方向に90度回転させる必要は無い。

【0071】次に、デジタルビデオカメラとして使用する場合、図1から図3に示される上述のテレビ電話と同じ本体部10とフリップ部20の向きにより使用することが好ましい。

【0072】使用者は、図9に示す動画・静止画切り替えスイッチ16を動画撮影に定めることで、第1撮影用レンズ33により撮影する画像の種類を動画像に設定する。撮影する画像の大きさは、タッチパネル付きモニター21を参照しながらズームボタン11を使用して調整する。撮影用ボタン13を押すと撮影が行われ、第1撮影用レンズ33に写る動画像が電子データに変換され記憶部53に記録される。

【0073】ここで、記憶部53は、画像の電子データを内蔵する半導体メモリに記憶し、いつでも呼び出してタッチパネル付きモニター21に再生することができる。蓄積したデータをパソコン等の外部情報処理端末に転送する場合、図1に示すデータ入出力用端子12-2からデータ入出力用端子ダミープラグ12-3を抜き、その代わりに接続ケーブルを挿入する。接続ケーブルの他方の端は情報処理端末に接続され、データの入出力が可能となる。

【0074】また三脚用固定穴15を使用することによって、三脚に固定した状態で撮影することも可能である。

【0075】同様に、デジタルスチルカメラとして使用する場合、図1から図3に示される上述のテレビ電話と同じ本体部10とフリップ部20の向きにより使用することが好ましい。

【0076】使用者は、図9に示す動画・静止画切り替えスイッチ16を静止画撮影に定めることで、第1撮影用レンズ33により撮影する画像の種類を静止画像に設定する。撮影する画像の大きさは、タッチパネル付きモニター21に表示しこれを参照しながらズームボタン11を使用して調整する。撮影用ボタン13を押すと撮影が行われ、第1撮影用レンズ33に写る静止画像が電子データに変換され記憶部53に記録される。

【0077】この場合、撮影用ボタン13はシャッターの役割をもち、本ボタンを使用して撮影を行う。このように撮影された映像は記憶部53に記録され、またいつでも呼び出し再生することができる。

【0078】また三脚用固定穴15を使用することによって、三脚に固定した状態で撮影することも可能である。

【0079】ペン入力端末として使用する場合、図11に示すように本体部10の内側の面とフリップ部20の外側の面を接触させて閉じた形態により使用する。これは、図10に示される通常の開いた状態から、本体部10とフリップ部20を開閉軸31を中心に任意の位置まで開いた後、フリップ部20のみを回転軸32を中心に横方向に180度回転させて、再び本体部10とフリップ部20を開閉軸31を中心にあわせることによって、図11の状態にするのである。

【0080】これにより、図12に示すようにフリップ部20のタッチパネル付きモニター21に対し、入力用

ペン40を用いて各種データや命令の入力を行うことができる。タッチパネル付きモニター21を外側に携帯端末は小さく閉じられているので、入力用ペン40の入力に際してタッチパネル付きモニター21がぐらつかないように、携帯端末を本体部10から手等で支えることができる。

【0081】また、本体部10の外側の面とフリップ部20の外側の面を接触させて閉じた形態により使用しても良い。これは、同じく図10に示す状態から、本体部10とフリップ部20を開閉軸31を中心に360度開いて本体部10とフリップ部20の外側の面同士をあわせるのである。

【0082】通常の携帯電話として使用する場合、図9に示すように本体部10とフリップ部20を開閉軸31を中心に任意の位置まで開くことにより、会話が可能となる。テレビ電話の場合と同様に操作キー17により電話番号を入力し、マイク18により音声を入力し、スピーカー24により受信した音声を再生する。

【0083】以上、本実施の形態の携帯端末により、電話機能、テレビ電話機能、デジタルカメラ機能、デジタルビデオカメラ機能、ペン入力端末等の多くの機能をコンパクトに実現することができる。

【0084】次に、本発明の第2の実施の形態の携帯端末を説明する。

【0085】第2の実施の形態においては、本発明の形態端末が備える各種の機能の起動を、本体部10とフリップ部20の成す向きに応じて制御するものである。

【0086】本体部10とフリップ部20の向きが、第1の実施の形態において説明した各機能に適する向きを成すことが、軸部状態センサー55により検出された場合に、その当該機能を起動させ又は起動可能な状態にするのである。

【0087】図14は本実施の形態の携帯端末の制御を説明するためのフローチャートである。

【0088】図14を参照すると、まず軸部状態センサー55は本体部10とフリップ部20の成す向きを認識するため、軸部30の開閉軸31と回転軸32のそれぞれが成す角度を検出する。(ステップ1401)

ここで、開閉軸31が閉じており(ステップ1402)、さらに回転軸32に回転が無い(つまりフリップ部20が正面方向を向く)場合には(ステップ1403)、現在本体部10とフリップ部20は内側同士が閉じられており未使用の状態であることを検出する(ステップ1404)。未使用であるため、必要ならば自動的に電源を切る等の処理を実行する。

【0089】ここで、開閉軸31が閉じており(ステップ1402)、さらに回転軸32の向きが180度回転している(つまりフリップ部が逆方向を向く)場合には(ステップ1403)、現在本体部10の内側とフリップ部20の外側が閉じられておりペン入力端末の機能を

使用する状態であることを認識する(ステップ1405)。

【0090】開閉軸31が開いており(ステップ1402)、開閉軸31の角度が90度以上180度以下で、回転軸32に回転が無い場合には(ステップ1406)、電話機能を使用する場合であることを認識する(ステップ1407)。

【0091】開閉軸が開いており(ステップ1402)、開閉軸の角度が90度で、回転軸32が90度曲がり第1撮影用レンズ33と、第2撮影用レンズ23が逆方向を向く場合(ステップ1408)には、テレビ電話・デジタルビデオカメラ・デジタルスチルカメラの内いずれかの機能を使用する場合であることを認識する(ステップ1409)。ここで、さらにこの内のいずれの機能を実行するのかは、それを指定する利用者による操作や予め定めた初期設定等により決定することができる。

【0092】また、上記のいずれの場合でもない場合には(ステップ1408)、再びステップ1401に戻り、本体部10とフリップ部20の成す向きがいずれかの機能に該当する向きになるのを待つ。

【0093】ここで、ステップ1405、1407、1409等において、現在使用する機能が認識された場合に、まだ当該機能が起動していない場合等の、必要な場合には当該機能を起動、又は起動可能な状態にする。また、他の機能が現在起動中の場合には、単にここで認識された機能を起動するのみでなく、起動中の機能を終了させ新たにここで認識された機能を起動させる切り替えの処理を行うものとしても良い。

【0094】以上説明した本実施の形態の携帯端末により、第1の実施の形態の効果に加え、携帯端末が備える各種の機能の起動を本体部10とフリップ部20の向きに対応し自動に行うことができるため、容易に各種の機能を起動させあるいは切り替えることができる。

【0095】次に、本発明の第3の実施の形態の携帯端末を説明する。

【0096】本発明の第3の実施の形態の携帯端末は、図15、図16に示すように、フリップ部20において、スピーカーホン24が位置している裏側に第二のスピーカー25を備えることが第1、第2の実施の形態と異なり、これにより携帯電話として利用する場合に、フリップ部20を回転軸32を中心に180度回転させてフリップ部の外側と、本体部の内側を表に向けて利用することができる。この場合、通常の携帯電話として使用しているときにもタッチパネル付きモニター21部分には頬が当たらず、モニター表面を汚すことなく会話が可能になる。

【0097】また、第2の実施の形態と、第3の実施の形態を合わせて実施することも、ステップ1406を“開閉軸の角度が90度以上180度以下で、回転軸が

180度回転し逆方向を向く”と置き換えることで可能である。

【0098】次に、本発明のその他の実施の形態を説明する。

【0099】本発明の形態端末が備える機能は、上述の実施の形態で説明した様に特に電話機能、テレビ電話機能、デジタルカメラ機能、デジタルビデオカメラ機能、ペン入力端末の機能の全てを備える形態以外にも、より少ない数のこの内のいくつかの機能を実施する携帯も可能である。

【0100】また、ラジオやテレビの電波の受信機能や、ポケットベルの機能、カーナビ等のナビゲーションシステム等の機能をさらに備える形態も同様に可能であり、またこれらの機能をさらに備える場合にも共通する装置や機能は多く、効率的に機能が付加することができ

る。

【0101】記憶部53は、上述の実施の形態で説明した内臓の半導体メモリを用いる形態以外にも、取り外しの可能な記憶媒体のユニットである半導体メモリや磁気メモリ等にデータを格納するドライブとしてもよい。

【0102】また、記憶部53に内臓の半導体メモリを用いる場合にも、外部の情報端末とのデータの交換は、データ入出力用端子12-2と接続ケーブルを用いる以外に、赤外線通信等により通信を行う形態が可能である。

【0103】以上好ましい実施の形態及び実施例をあけて本発明を説明したが、本発明は必ずしも上記実施の形態及び実施例に限定されるものではなく、その技術的思想の範囲内において様々に変形して実施することができる。

【0104】

【発明の効果】第1の効果は、テレビ電話として使用する場合、自分の顔と自分がみている風景を容易に同時に相手側に伝えることが可能になる。その理由は、撮影用レンズを2台装備し、切り替えスイッチを備えることによって簡単な操作で画像を送ることができるからである。

【0105】第2の効果は、動画、静止画、文字メール、携帯電話等多様な操作が可能となる携帯端末を提供することが可能になる。その理由は、回転軸を2つ備えそれぞれが自由な角度に設定することができるため、様々な使用形態に適する構造をとれるからである。

【0106】第3の効果は、容易に撮影した画像をパソコン等の情報処理装置に転送、またパソコンから画像を携帯端末側に転送する事が可能になる。その理由は、データ入出力用インターフェースを設けることによって、メモリーカード等の記憶媒体を介さず簡単に他の機器と接続することを可能にしているからである。

【図面の簡単な説明】

【図1】 本発明の第1の実施の形態による携帯端末の

一実施例のビデオカメラ、デジタルスチルカメラ、テレビ電話機の機能を使用する場合の正面図である。

【図2】 図1の、本発明の第1の実施の形態による携帯端末の一実施例の背面図である。

【図3】 図1の、本発明の第1の実施の形態による携帯端末の一実施例の斜視図である。

【図4】 本発明の第1の実施の形態による携帯端末の一実施例の、タッチパネル付きモニターと操作キーを内側にして閉じた状態を示すフリップ部から見た正面図である。

【図5】 図4の、本発明の第1の実施の形態による携帯端末の一実施例の撮影用レンズ側からの側面図である。

【図6】 図4の、本発明の第1の実施の形態による携帯端末の一実施例の底面図である。

【図7】 図4の、本発明の第1の実施の形態による携帯端末の一実施例の本体部から見た背面図である。

【図8】 図4の、本発明の第1の実施の形態による携帯端末の一実施例の上部から見た平面図である。

【図9】 本発明の第1の実施の形態による携帯端末の一実施例の、フリップ部のタッチパネル付きモニターと本体部の操作キーとを同じ向きに開いた状態を示す正面図である。

【図10】 本発明の第1の実施の形態による携帯端末の一実施例の、タッチパネル付きモニターと操作キーを内側にして閉じた状態を示す斜視図である。

【図11】 本発明の第1の実施の形態による携帯端末の一実施例の、フリップ部の液晶モニターの面と本体部の操作キーの面を内側にして閉じた状態を示す斜視図である。

【図12】 本発明の第1の実施の形態による携帯端末の一実施例の、ペン入力用携帯端末の機能を使用する場合を示す正面図である。

【図13】 本発明の第1の実施の形態による形態端末の内部構造を示すブロック図である。

【図14】 本発明の第2の実施の形態による形態端末の処理を説明するフローチャートである。

【図15】 本発明の第3の実施の形態による携帯端末の一実施例の、フリップ部のスピーカと本体部の操作キーとを同じ向きに開いた状態を示す正面図である。

【図16】 本発明の第3の実施の形態による携帯端末の一実施例の、携帯電話の機能を使用する場合を示す正面図である。

【符号の説明】

10 本体部

11 ズームボタン

12-1 音声入出力用端子

12-2 データ入出力用端子

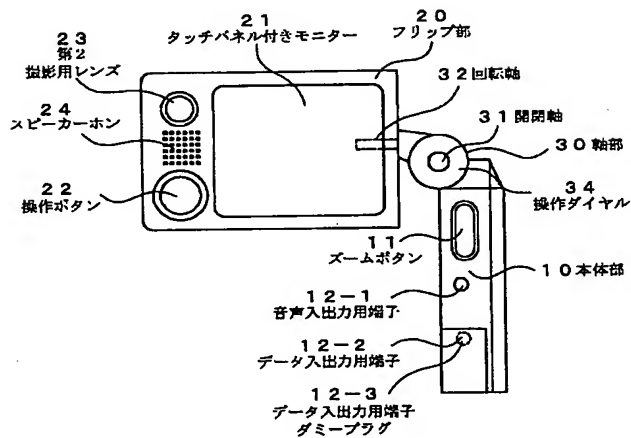
12-3 データ入出力用端子ダミープラグ

13 撮影用ボタン

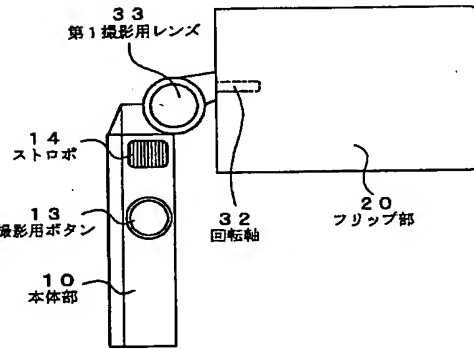
- 14 ストロボ
- 15 三脚用固定穴
- 16 動画・静止画切り替えスイッチ
- 17 操作キー
- 18 マイク
- 19 入力用ペン格納部
- 20 フリップ部
- 21 タッチパネル付きモニター
- 22 操作ボタン
- 23 第2撮影用レンズ
- 24 スピーカーホン
- 25 スピーカー

- 30 軸部
- 31 開閉軸
- 32 回転軸
- 33 第1撮影用レンズ
- 34 操作ダイヤル
- 40 入力用ペン
- 51 制御部
- 52 操作部
- 53 記憶部
- 54 通信部
- 55 軸部状態センサー

【図1】

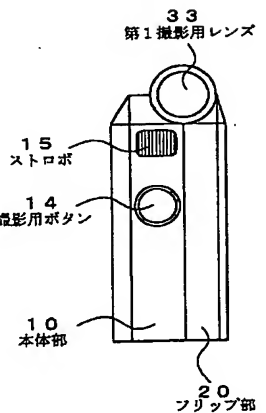
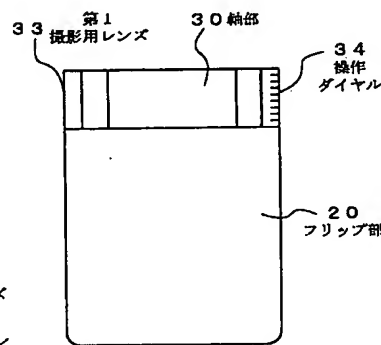


【図2】

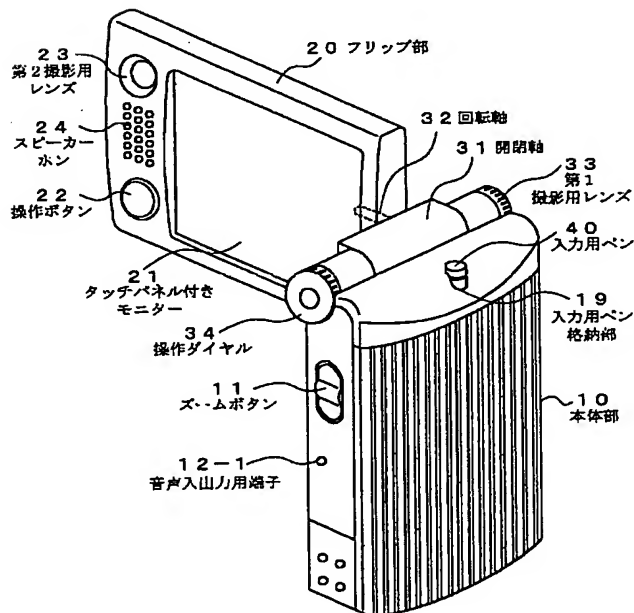


【図4】

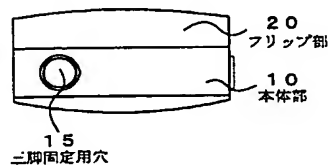
【図5】



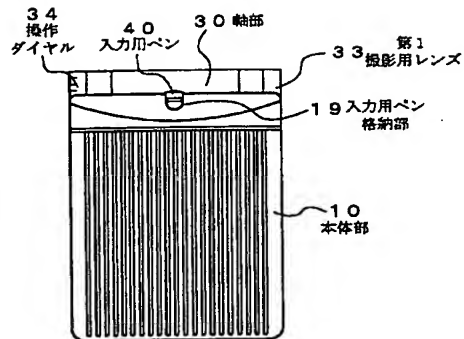
【図3】



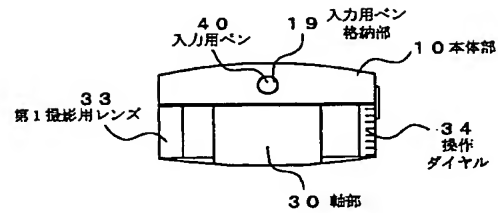
【図6】



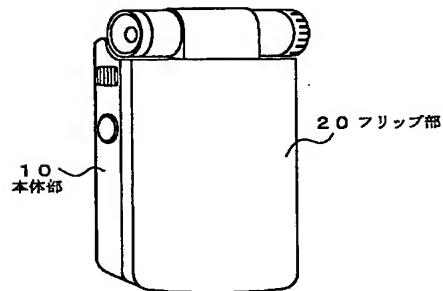
【図7】



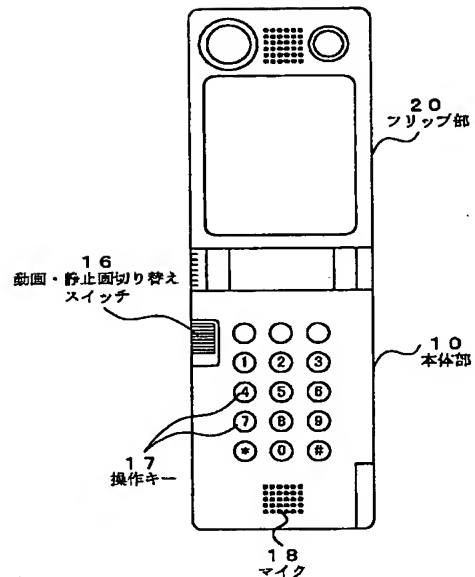
【図8】



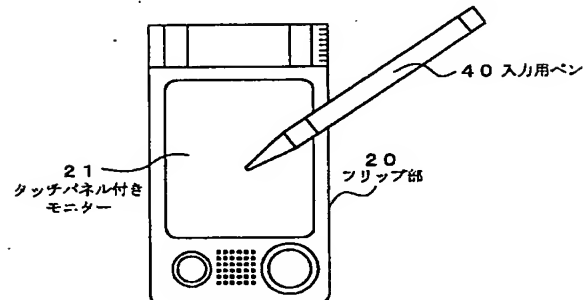
【図10】



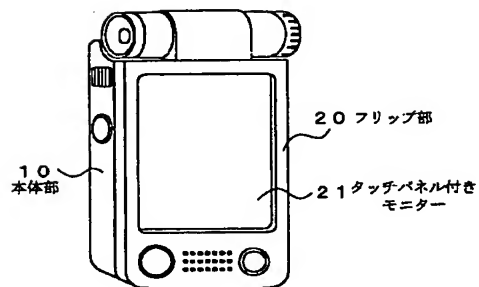
【図9】



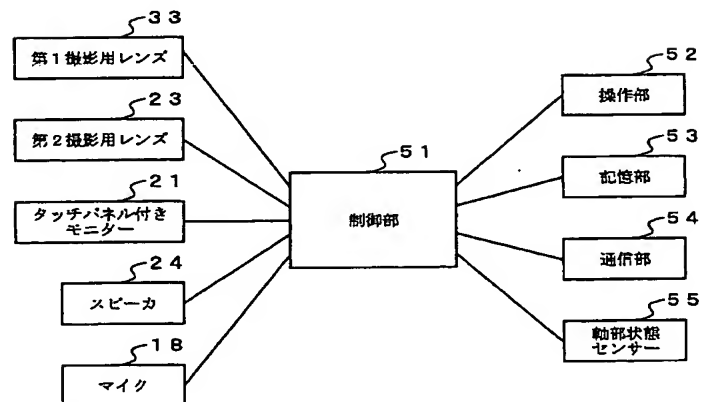
【図12】



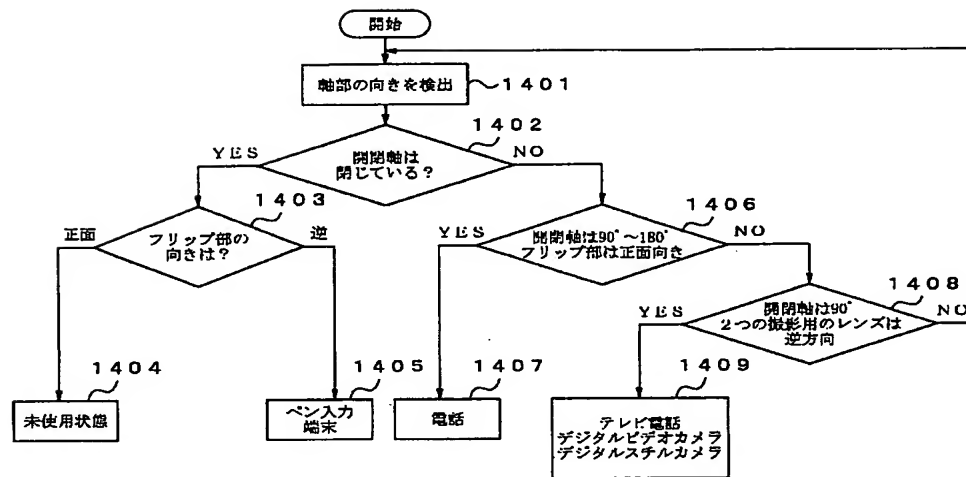
【図11】



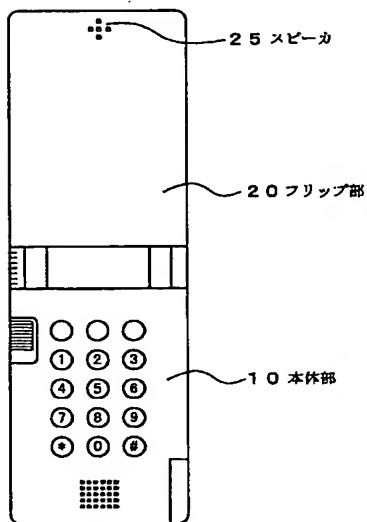
【図13】



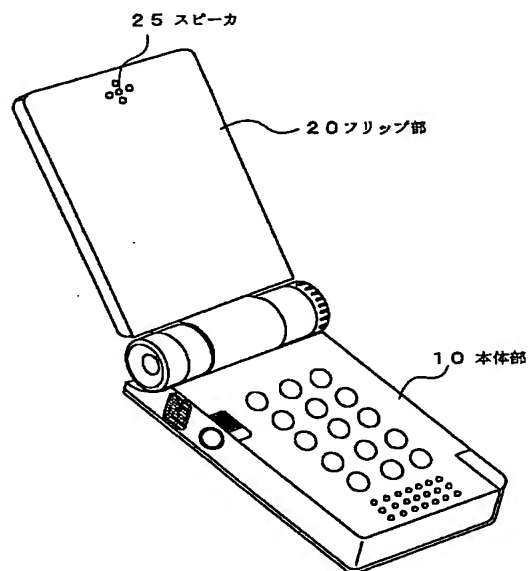
【図14】



【図15】



【図16】



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